



# U.S. Department Of Energy

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**Lawrence Livermore National Laboratory**  
University of California Livermore, California 94551



UCAR-10249 rev 1

## **Revised Community Relations Plan for the Lawrence Livermore National Laboratory Livermore Site**

**June 1993**

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**Environmental Protection Department**  
**Environmental Restoration Division**

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## Summary

Since 1988, the purpose of the community relations program for the Lawrence Livermore National Laboratory (LLNL) Livermore Site Superfund cleanup (the Project) has been to provide a framework for presenting understandable and consistent information to interested parties during the Remedial Investigation/Feasibility Study stage of the cleanup process. The community relations program also has been a way to establish a dialogue between the U.S. Department of Energy (DOE), LLNL, and all parties interested in the site cleanup. Most importantly, the program has established opportunities for public involvement in the decision-making process for selecting the cleanup alternative for ground water and soil contamination at the LLNL Livermore Site. The program first was described in a Community Relations Plan (CRP) document, which LLNL formally issued in May 1989. This Revised CRP supersedes the original plan.

LLNL is a government-owned, contractor-operated facility of DOE. LLNL currently is operated and managed by the Regents of the University of California under contract to DOE. The LLNL Livermore Site occupies approximately 800 contiguous acres adjacent to the City of Livermore.

In July 1992, DOE and the U.S. Environmental Protection Agency (EPA) signed the Record of Decision (ROD) for cleanup of the LLNL Livermore Site. State regulatory agencies including the Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB) concurred with that decision. As the next phase of the Superfund process begins—designing and implementing the chosen cleanup methods—the CRP is being revised to reflect current community interest and information needs.

This CRP is based on responses to the community assessment survey conducted in November and December 1992 to provide DOE and LLNL (DOE/LLNL) with information on the status of the Project community relations program. Interviews were conducted with a broad cross section of the community and others interested in the Project, including the original Community Work Group (CWG), neighboring residents, businesses, public interest groups, and local, State, and Federal officials and agency representatives. (See Appendix A for more detail.) Comments provided by CWG members at two August 1992 CWG meetings also were taken into account in preparing this plan.

During the 60-day regulatory agency review period to which this plan was subject, the CWG met to discuss the first draft of this revised document. DOE/LLNL also initiated a teleconference with Tri-Valley CAREs and its Technical Advisors during the same time frame to discuss the draft document. This version of the CRP incorporates a majority of the comments and suggestions that DOE/LLNL received on the plan during that review period.

Overall, survey comments about LLNL's Livermore Site community relations program were favorable, and there were a number of suggested improvements. DOE/LLNL are committed to ensuring that community concerns and information needs continue to be factored into future site Superfund decisions. During the design and implementation stages of the Project, DOE/LLNL

will continue to balance community concerns with significant technical, legal, and policy issues that may need to be addressed. DOE and LLNL are committed to maintaining a community relations program throughout the life of the cleanup.

Over one-third of the interviewees expressed no concerns about the Project. A number of interviewees expressed concern that too much money was being spent on the cleanup since they did not consider it to be a critical problem and public health is not being endangered. The concerns expressed can be grouped into the following categories: DOE/LLNL's approach to the cleanup and cleanup methods used, communications and community relations, health and environmental issues/contaminant risks, long-term funding/administration of the Project, and other Laboratory activities.

Based on a reassessment of the community's needs and concerns reported in this plan, the specific objectives of this revised community relations program at the LLNL Livermore Site are to:

- Provide for an open dialogue on the remaining Project issues between DOE/LLNL and the public so that community concerns can be factored into the ongoing technical work.
- Continue to explain the nature of this new stage in the Superfund process.
- Provide accurate and timely information about current activities to interested members of the community (at LLNL and elsewhere), including information about other environmental research and development projects that may be applicable to the Project, and ongoing cleanup optimization efforts.
- Seek effective and meaningful ways to help the public evaluate progress toward site cleanup.
- Be responsive to the special information needs of elected officials, regulatory agency representatives, and interested members of the public. One of the ways of doing that will be to provide increased opportunities for tours of Project-related facilities and periodic briefings.
- Respond to changes in community concerns and interest levels about the Project.
- Be aware of the public's interest in other DOE/LLNL environmental projects, and continue to integrate the LLNL Livermore Site community relations program for the Project into LLNL's overall Area Relations office environmental communication efforts.

Many of the community relations activities will continue to be informational, and DOE/LLNL will work to simplify the technical information for the general public. Other activities, such as small group meetings, will provide an opportunity for DOE/LLNL and the community to continue a two-way exchange and dialogue. One of the greatest challenges will be in communicating information about a cleanup Project that is a dynamic and evolving activity. For example, the cleanup approach will continue to be refined and optimized as actual field observations show the extent to which predesign estimates and assumptions were accurate. Initial conclusions regarding cleanup progress may change over time due to the inherent uncertainties associated with large-scale ground water and soil cleanups. These kinds of changes

may concern some members of the public, particularly those who have had no experience with this kind of environmental cleanup. DOE/LLNL will seek to appropriately convey the nature of this process to the public and respond to their concerns.

For the most part, DOE/LLNL will continue providing the wide range of community relations activities that characterized the initial (precleanup decision) stage of Project activities. Survey participants and the original CWG members expressed strong preferences for a periodic newsletter (like the *Ground Water Update*), LLNL meetings, tours, and, when appropriate, direct contact with LLNL or DOE staff. Media were also expected to continue being an information source, although few interviewees wanted to rely on the media as the primary source of Project news. A number of suggestions were received for improving or emphasizing these activities. DOE/LLNL's plans for incorporating those suggestions are described in Section 8 of this document.

## Introduction and Overview

The purpose of this community relations program is to:

- Establish two-way communication between U.S. Department of Energy/Lawrence Livermore National Laboratory (DOE/LLNL) and those members of the public with a particular interest in site progress and cleanup decisions.
- Provide understandable and consistent information to community members interested in the LLNL Livermore Site Superfund cleanup (the Project).

DOE/LLNL are committed to ensuring that community concerns and information needs continue to be a factor in future technical decisions. During the design and implementation stages of the Project, DOE/LLNL will continue to balance community concerns with significant technical, legal, and policy issues that may need to be addressed.

This Revised Community Relations Plan (CRP) supersedes the original CRP, issued in May 1989. It documents the ways that DOE/LLNL will continue to interact with the public during the design and implementation stages of the Project. In addition, it includes information on the technical background, history of community involvement, projected future technical activities, and community concerns related to either the cleanup or LLNL's community relations program. It is not the goal of this Revised CRP to thoroughly chronicle the technical history of the site; technical documents that provide this kind of historical background are available for review in the Information Repositories described in Appendix D.

The community relations activities described in this Revised CRP will occur under the lead of DOE and the LLNL Environmental Restoration Division (ERD). This plan includes only those activities related to contaminants in soil and ground water at the LLNL Livermore Site, and does not include Site 300, which is located 15 miles southeast of the LLNL Livermore Site and has a separate CRP.

This Revised CRP is based, in part, on an analysis of discussions conducted between November and December 1992 with the following individuals, groups, and agencies (see Appendix A for more details):

- Community Work Group (CWG) members--those that served through the March 1993 term (including City of Livermore and regulatory agency representatives).
- Former CWG members.
- Past attendees of CWG meetings.
- LLNL staff and management.
- Randomly selected LLNL employees.
- Business representatives.
- Public interest groups.

- LLNL neighbors.
- LLNL neighbors whose wells are sampled.
- Elected officials.
- City and county representatives.

The designated contact person for community relations activities at the LLNL Livermore Site is:

Bert Heffner, Area Relations Manager, Public Affairs Department, LLNL (L-790), P.O. Box 808, Livermore, CA 94551, (510) 422-9799.

Anyone wishing to discuss community concerns and information needs is encouraged to contact Bert Heffner, by mail or by telephone, between 8:00 a.m. and 4:45 p.m., Monday through Friday. A receptionist or answering machine will respond if he is not available.

## **1. Site Location, Ownership, and Operation**

LLNL is located in the Livermore Valley of eastern Alameda County, California, 39 miles southeast of San Francisco. The LLNL Livermore Site occupies approximately 800 contiguous acres adjacent to the City of Livermore (see Fig. 1). LLNL also conducts activities at Site 300, located 15 miles southeast of the LLNL Livermore Site. The land at both the LLNL Livermore Site and Site 300 is owned by DOE. Because Site 300 is not part of the LLNL Livermore Site, it is not included for discussion in this document. There is a separate community relations program for Site 300.

LLNL is a multiprogram national laboratory whose primary mission since 1952 has been to conduct research and development activities for nuclear weapons and energy programs. LLNL has diversified its activities in the past 20 years by expanding into other areas of research, including energy and biomedicine. LLNL is a government-owned, contractor-operated facility of DOE. LLNL is currently operated and managed by the Regents of the University of California under contract to DOE.

### **1.1. Use of Hazardous and Radioactive Materials**

During the 1940s, the U.S. Navy owned and operated the area now known as the LLNL Livermore Site. The Navy first used it as a flight training base and later as an engine rework facility. An asphalt-paved landing mat was located near the center of the site, with peripheral taxiways and a concrete parking area. In addition, several unpaved areas between the landing mat and the periphery were used for maintenance of aircraft as well as for storage and disposal of chemicals, including VOCs and solvents, such as VOCs, other solvents, and other materials. The Livermore Naval Air Station ceased operations in the late 1940s.

Figure 1

The transition from naval operations to a research facility began in 1951, when the Atomic Energy Commission (AEC) assumed ownership of the site. In the 1950s and 1960s, the site became a weapons-design laboratory engaged in research and development in addition to basic physics. Short-term users of the site in the 1950s included the California Research and Development Corporation and Pratt and Whitney Aircraft. Activities conducted by these companies that may have contributed to the site environmental contamination include metallurgical research and the construction and operation of a Materials Test Accelerator to demonstrate the feasibility of using high-energy neutrons to produce nuclear materials. These activities were conducted under AEC jurisdiction.

The AEC became part of what is now known as DOE in 1977. From 1956 to the present, LLNL has been engaged in research activities at the LLNL Livermore Site that have involved the storage, use, and disposal of VOCs, fuel hydrocarbons, and radioactive wastes. These activities include continued development of warheads for new military systems and research on other forms of directed energy that may be applied in future strategic defense systems. Non weapons work that may have contributed to the contamination includes development of nuclear applications for peaceful purposes and research in the areas of biomedicine, energy, magnetic fusion energy, and lasers.

## **2. Current Status of Environmental Cleanup Activities**

DOE/LLNL have been addressing ground water and soil contamination at the LLNL Livermore Site since 1983, when contamination was first discovered. This work has been performed under the oversight of one Federal and two State regulatory agencies: the U.S. Environmental (EPA); the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC); and Cal/EPA, Regional Water Quality Control Board (RWQCB). All activities also have been coordinated with the Alameda County Flood Control and Water Conservation District (Zone 7) and the Bay Area Air Quality Management District. (See Section 4 for a complete technical history.)

In July 1992, DOE and EPA signed a Record of Decision (ROD) that describes the cleanup approach for ground water and soil contamination at the LLNL Livermore Site. Extensive studies and modeling were conducted in the approximately 9-year period leading up to that decision. Community input also was taken into account, following over 5 years of an active community relations program regarding the Project investigation. For the past 3 years leading up to the final cleanup decision, an LLNL-supported CWG met to discuss and provide feedback on LLNL's progress. Input from the recipients of an EPA Technical Assistance Grant also was taken into account.

Now that the cleanup approach has been chosen, the Project is moving into a new phase of technical activities. The primary work will be to construct, operate, and monitor the ground water and soil treatment facilities and their associated extraction wells. (See Section 6 for a description of these facilities) Work will also continue on refining ground water and contaminant fate and transport models, and optimizing the cleanup. DOE will pay particular attention to how well the cleanup remedies are meeting their goals. As required by the

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the processes and technologies will be reviewed every 5 years with the regulatory agencies.

### **3. Public Health and Environmental Risks at the LLNL Livermore Site**

Past handling and storage of hazardous materials at the LLNL Livermore Site have resulted in the release and subsequent migration of hazardous and radioactive contaminants into the ground water and soil. The primary ground water contaminants are the VOCs trichloroethylene (TCE) and perchloroethylene (PCE). These chemicals were primary components of solvents and degreasers used at the LLNL Livermore Site in the past. They have been found in concentrations that exceed State and Federal drinking water standards. Fuel hydrocarbons, chromium, lead, and tritium are also being addressed in the cleanup. A complete list of the contaminants, along with the concentration levels at which these contaminants have been found, are shown in Table 1.

As part of the CERCLA Remedial Investigation, DOE/LLNL conducted a *Baseline Public Health Assessment* to estimate the current and future risks to human health and the environment if no cleanup actions were taken. A risk assessment is a scientific procedure that uses facts and assumptions to estimate the potential for adverse effects on human health from exposure to chemicals. Potential risk is determined by assessing the amount of a material a person may ingest or come into contact with in water, soil, and air, and comparing the estimated exposure to an amount of the material known or suspected to cause harm. The risk is expressed as the chance of a disease or an effect occurring. For example, a risk level of one in one million means that a person coming into contact with a certain chemical would increase his or her normal risk of developing cancer (which for Americans is about a one in four chance) by one in one million.

Risk assessments make conservative assumptions that weigh in favor of protecting public health. For example, the risk assessment for the LLNL Livermore Site ground water contaminants assumed exposure to the maximum possible chemical concentrations, every day, for a 70-year period, even though actual exposure is likely to be far less.

The main ways that a person could potentially be exposed to LLNL Livermore Site contaminants is by drinking, bathing in, or breathing vapors while showering in, contaminated ground water. Using EPA-approved methods, LLNL estimated the potential cancer risks for three different exposure scenarios:

1. A "best estimate" case, which took into account the locations of existing private and municipal supply wells and the most realistic hydrogeologic and chemical-concentration estimates. It was estimated that it will take 270 years for the contaminants to reach the nearest municipal supply well. This estimate represents the most probable set of conditions under which a person might be exposed to the contaminants.
2. A "health conservative" case based on the same assumptions as the "best estimate" above, except that the time for the contaminants to reach the municipal supply wells was estimated at 110 years.

**Table 1. Remediation standards and State discharge limits for compounds of concern in ground water at the LLNL Livermore Site.**

Constituent	Concentration limit <sup>a</sup>		Preremediation concentration range at the LLNL Livermore Site March 1990–March 1991 (ppb)	Discharge limit <sup>b</sup> for treated water (ppb)
	Federal MCL (ppb)	California MCL (ppb)		
PCE	5	5	<0.1–1,050	4
TCE	5	5	<0.1–4,800	5
1,1-DCE	7	6	<0.5–370	5
cis-1,2-DCE	70	6	<0.5–24	5 (total 1,2-DCE)
trans-1,2-DCE	100	10	<0.5–1	5 (total 1,2-DCE)
1,1-DCA	—	5	<0.5–60	5
1,2-DCA	5	0.5	<0.1–190	5
Carbon tetrachloride	5	0.5	<0.1–91	5
Total THM <sup>c</sup>	100 <sup>c</sup>	100 <sup>c</sup>	<0.5–270	5
Benzene	5	1.0	<0.1–4,600	0.7
Ethyl benzene	700	680	<0.2–610	5
Toluene	1,000	—	<0.5–4,200	590
Xylenes (total)	10,000	1,750 <sup>d</sup>	<0.5–3,700	5
Ethylene dibromide	0.05	0.02	<0.1–51	0.02
Total VOCs	—	—	up to 5,800	5
Chromium <sup>+3</sup>	50 (total Cr) <sup>e</sup>	50 (total Cr)	<5–150 (total Cr)	50 (total Cr)
Chromium <sup>+6</sup>	50 (total Cr) <sup>e</sup>	50 (total Cr)	<10–140	11
Lead	15 <sup>f</sup>	50	<2–10	5.6
Tritium <sup>g</sup>	20,000 pCi/L	20,000 pCi/L	<200–33,100	(h)

<sup>a</sup>Human receptor. The more stringent concentration limits on this part of the table are shown in a larger typeface to illustrate that LLNL will comply with the most stringent requirements.

<sup>b</sup>From National Pollutant Discharge Elimination System (NPDES) Permit No. CA0029289 (revised 8/1/90) and RWQCB Order No. 91-091. Of the LLNL compounds of concern, VOC-specific State discharge limits exist in RWQCB Order No. 91-091 only for PCE (4 ppb), benzene (0.7 ppb), and ethylene dibromide (0.02 ppb). Other VOCs listed in this table are included in the 5 ppb total VOC limit. Discharge limits for metals differ slightly according to discharge location.

<sup>c</sup>Total trihalomethanes (THMs); includes chloroform, bromoform, chlorodibromomethane, and bromodichloromethane (California Drinking Water Requirement).

<sup>d</sup>MCL is for either a single isomer or the sum of the ortho, meta, and para isomers.

<sup>e</sup>National Interim Primary Drinking Water Regulation for total chromium is presently 50 ppb, but will increase to 100 ppb in July 1992. No MCLs exist for Cr<sup>+3</sup> or Cr<sup>+6</sup>.

<sup>f</sup>National Primary Drinking Water Regulation Enforceable Action Level (Federal Register, volume 56, number 110, June 7, 1991, p. 26460).

<sup>g</sup>The RI shows that ground water in the one well that currently exceeds the tritium MCL will be naturally remediated long before it migrates offsite.

<sup>h</sup>There is currently no NPDES discharge limit for tritium. LLNL will use the MCL for tritium as the discharge limit.

3. A second “health conservative” case that assumed hypothetical, highest possible exposures, such as drinking 2 liters of water per day from the most contaminated zone located immediately west of the LLNL Livermore Site. Since no drinking water wells exists or are in use in that area, and LLNL believes that no wells are likely to be drilled in that area in the future, LLNL considers this an unlikely scenario.

Under the best estimate case, the potential risk from VOCs in the contaminated ground water is 7 in 10 million. This means that, if a person were to drink 2 liters of this water each day for 70 years, his or her risk of developing cancer would be increased by 7 in 10 million. Under the first health conservative case, the risk is 1 in 1,000. Under the second health conservative case, the risk is 2 in 1,000. A summary of the health risks from potential exposures to the VOCs is presented in Table 2. A detailed risk assessment was not done for fuel hydrocarbons because their potential to migrate offsite in concentrations above drinking water standards is very low; efforts are currently underway for their cleanup. Similarly, risk assessments were not done for chromium and lead because they occur in relatively small areas along with VOCs and fuel hydrocarbons, respectively. These metals will be removed and treated if necessary with the VOCs and fuel hydrocarbons. Preliminary risk estimates for volatilization of contaminants from the surface soils were also extremely low, and were therefore not considered in the detailed risk assessment.

**Table 2. Summary of the maximum potential cancer risks for exposure to VOCs in well water if no cleanup occurs.**

Scenario	Arrival time of maximum VOC concentrations <sup>a</sup>	Additional cancer risk
Best estimate <sup>b</sup>	270 years	7 in 10,000,000 <sup>c</sup>
Health conservative <sup>b</sup>	110 years	1 in 1,000
Health conservative <sup>d</sup>	35 years	2 in 1,000

<sup>a</sup>This is the estimated length of time it will take for the highest concentration of chemicals to reach the specified well. The best estimate assumes a migration rate based on current data, and some degradation and retardation (slowing) of the chemical. The health conservative estimate assumes that the ground water will move twice as fast as the best estimate, and that the chemicals will not degrade or be retarded in their migration.

<sup>b</sup>Based on VOCs reaching municipal wells in downtown Livermore.

<sup>c</sup>This means that each individual that consumes 2 liters of this water each day for 70 years would increase his or her risk of developing cancer by 7 in 10 million. This risk is in excess of the normal 1 in 4 cancer risk faced by all Americans.

<sup>d</sup>Based on VOCs reaching a hypothetical monitor well drilled immediately west of the LLNL Livermore Site.

### 3.1. No One Currently Using the Contaminated Water

No one is currently using water that has been affected by LLNL Livermore Site contaminants:

- All affected private and agricultural wells have been sealed off.

- LLNL employees use water from the Hetch-Hetchy Reservoir and sometimes from the Zone 7 Water District, neither of which use LLNL and area ground water.
- No LLNL contaminants have reached the Livermore municipal water supply wells, nor are they likely to for over 100 years, if ever.

### **3.2. Tritium**

To date, tritium is the only radioactive material that has been found above regulatory limits in ground water at the LLNL Livermore Site. With the exception of two monitor wells in the area of an old hazardous waste disposal pit in the eastern part of the site, tritium has historically been found in ground water in concentrations well below the drinking water standard of 20,000 picocuries per liter.

LLNL conducted a special risk analysis to assess the risks from tritium in ground water and soil at the LLNL Livermore Site. There are two primary ways that someone could potentially be exposed to subsurface tritium at the site:

- From air emissions associated with ground water cleanup activities that, in the future, might be treating ground water that contains both VOCs and tritium (e.g., using an air stripping process).
- From vegetation that has absorbed soil moisture and then, through transpiration, given off into the air the water that contains tritium.

The results of this risk analysis show that the hypothetical, maximum annual dose that a person could receive is substantially lower than the 10-millirems-per-year maximum dose standard set by EPA.

Studies show that the tritium in the subsurface at the LLNL Livermore Site is moving so slowly that it will naturally decay to background levels before anyone offsite could be exposed to it in the future. At the present, there are no known significant ongoing sources of tritium to ground water or the unsaturated soils. For this reason, LLNL does not believe that tritium poses a health threat at the LLNL Livermore Site. DOE/LLNL believe that they know the major sources of tritium in the soil and ground water, but will continue to monitor and investigate for tritium and other radio nuclides.

## **4. History of Technical Activities and Regulatory Involvement**

### **4.1. Discovery of Problem**

Initial releases of hazardous materials occurred in the mid- to late-1940s, when the LLNL Livermore Site was operated as an air training base by the U.S. Navy. Localized spills, leaking tanks, surface impoundments, and landfills contributed to subsequent contamination after the site was transferred to DOE.

The first regulatory order regarding contamination at the LLNL Livermore Site was a compliance order issued in 1984 by the California Department of Health Services (now the DTSC of the California Environmental Protection Agency). This order required LLNL to investigate ground water quality and to supply bottled water to local residents whose domestic wells had been affected by VOCs migrating in ground water from LLNL.

At the time this order was issued, LLNL's own investigation was already underway. LLNL had already taken an immediate action (in December 1983) to protect nearby residents who used ground water for drinking by providing them with bottled water if their water showed any VOCs. All private wells affected by the VOCs were permanently sealed by LLNL between 1985 and 1989. LLNL provided free municipal (City of Livermore) water hookups to all affected households.

#### **4.2. Cleanup Work and Studies**

Between 1985 and 1987, the RWQCB was the lead regulatory agency for the site investigations. In July 1987, when it was listed on the National Priorities List, the U.S. EPA began overseeing LLNL's investigation and cleanup activities as part of the Federal Superfund program. The Superfund program addresses past releases of hazardous materials at private and public facilities nationwide. LLNL's cleanup program is funded by DOE. Besides EPA and the RWQCB, DTSC and Alameda County's Zone 7 Water District also help oversee LLNL's cleanup activities.

DOE/LLNL have conducted a number of investigation and cleanup activities since the ground water problem first was discovered. Between 1982 and 1984, hazardous waste was excavated and removed from two areas in the eastern part of the LLNL Livermore Site. Between 1984 and 1990, LLNL conducted in-depth investigations to characterize the nature and extent of the problem (*Remedial Investigation* report, May 1990). DOE/LLNL also evaluated the health risks posed by the site contaminants if no cleanup were to occur (*Baseline Public Health Assessment*, contained in the final *Remedial Investigation* report, May 1990). In December 1990, DOE/LLNL completed a study that evaluated the feasibility of potential cleanup alternatives for LLNL. This *CERCLA Feasibility Study for the LLNL Livermore Site* (FS) evaluated the health impacts after cleanup and estimated the costs of the cleanup alternatives. The FS was reissued in October 1991. In 1991, DOE/LLNL released the proposed cleanup plan for the site problems (*Proposed Remedial Action Plan for the Lawrence Livermore National Laboratory, Livermore Site, Livermore, California* (PRAP), October 1991).

#### **4.3. Pilot Studies**

DOE/LLNL also conducted two pilot studies to test the effectiveness of technologies for extracting and treating VOCs and fuel hydrocarbons from ground water and unsaturated soil. By the end of 1992, LLNL had extracted over 46 million gallons of ground water from the southwest part of the site. An ultraviolet light/hydrogen peroxide system was used to destroy the contaminants. To conserve local ground water, most of this treated water was returned to the ground via a recharge basin just south of LLNL, or used at LLNL for landscape irrigation and in cooling towers. In another pilot study, LLNL removed the equivalent of about 1,900

gallons of fuel hydrocarbons as of June 1991. Vapors were withdrawn from the unsaturated sediments in the Gasoline Spill Area and were destroyed by a thermal oxidizer.

#### **4.4. Cleanup Remedies Chosen**

Beginning in 1991, DOE and LLNL representatives began meeting more frequently with CWG members to discuss CWG issues and concerns about the cleanup approach that LLNL was beginning to favor. As appropriate, those CWG concerns were taken into account when the proposed cleanup plan was released for public comment in October 1991. (See Appendix H, Section B, for a summary of CWG concerns and how DOE/LLNL responded to them.) DOE/LLNL placed public notices in several area newspapers regarding the proposed plan, and distributed a summary of the plan to approximately 1,800 interested members of the local community, as well as State and national environmental groups, agencies, and elected officials. DOE/LLNL held a public hearing on the proposed cleanup plan on November 6, 1991, as required by the Superfund process. After that meeting, LLNL extended the public comment period in response to a request from the community. The entire public comment period extended from October 18 to December 18, 1991.

At the November 6, 1991 public meeting, a total of 15 people read comments into the public record. Sixteen letters were received, some of which were quite detailed. In general, those commenting accepted the technical aspects of the proposed cleanup; most wanted stronger funding commitments and a more detailed implementation schedule. They also asked for continued public involvement, and a faster cleanup than the proposed 53 years. All comments were addressed in a *Responsiveness Summary* document (attached to the *Record of Decision* —ROD).

In July 1992, DOE and EPA signed the ROD, which formally detailed the cleanup approach for ground water and soil contamination at the LLNL Livermore Site. The selected remedy for the contaminated ground water is to extract and treat the water in order to control further migration of the contaminant plume, remove the subsurface sources of the contaminants, and prevent any exposure to people. Ultraviolet light/hydrogen peroxide, granular activated carbon, ion-exchange, or air stripping treatment technology will be used to remove the contaminants. For contaminated soils above the ground water (the area known as the vadose or unsaturated zone), DOE/LLNL will extract the contaminant vapors using vacuum-induced venting, then treat the contaminant vapors using granular activated carbon. DOE/LLNL notified the public about the choice of cleanup via public notices in the local newspapers, a fact sheet, and a special mailing to the CWG members.

#### **4.5. Implementing the Cleanup Plan**

DOE/LLNL released the *Draft Remedial Action Implementation Plan* (RAIP) for review by the regulatory agencies and the CWG in July 1992. The RAIP was issued as a final document in January 1993. The RAIP is the first step in the Remedial Design/Remedial Action phase of the Superfund process. It presents the work plan and schedule for preparation of the Remedial Design (RD) documents. The RD documents (which include the Remedial Action work plans) explain how the chosen remedial actions will be implemented for the LLNL Livermore Site.

Figure 2

Two of the treatment facilities are already built and have been operating as pilot facilities for the past few years. The new treatment facilities are currently being designed and work is being done to increase the number of ground water extraction locations associated with the two operating treatment facilities. See Figure 2 for the location of the treatment facilities in relation to the ground water plume. For information on upcoming technical Project activities, see Section 6.

## **5. Community Relations History**

### **5.1. Community Profile**

The LLNL Livermore Site is located in eastern Alameda County, in what is known as the Livermore-Amador Valley. The site is just east of the Livermore city limits. The population, development, and economy of the Livermore-Amador Valley area are greatly influenced by the number of persons employed by LLNL, as well as the industry and commerce supported by the facility. LLNL continues to be the major employer for the City of Livermore, but the nearby business parks also are beginning to employ large numbers of local residents. Where the LLNL Livermore Site was once isolated from nearby communities, today the site is abutted by substantial residential and business developments, particularly on its northern and western boundaries.

### **5.2. Highlights of Past Public Participation Activities**

#### **5.2.1. Background**

The LLNL Livermore Site ground water contamination was brought to the attention of the local community in December 1983, when PCE was first discovered by LLNL in the domestic supply well of a former rental property southwest of LLNL. LLNL's immediate action was to sample private wells and deliver bottled water to nearby residents whose wells had been affected. LLNL periodically surveyed these households, located south, southwest, and west of the LLNL Livermore Site, to ensure that the residents were receiving bottled water to meet their water needs, and to see that the water was arriving in a timely manner. Subsequently, LLNL provided free municipal (City of Livermore) water hookups to the affected households. LLNL also began a regular private well sampling program. In all cases, testing results were (and continue to be) shared with the residents either through telephone calls, personal visits, or follow-up letters that include written sampling results.

#### **5.2.2. Community Involvement**

DOE/LLNL staff conducted interviews between April and July of 1988 with a total of 45 people (private individuals, interest group representatives, and elected and agency officials) to learn of their concerns and information needs regarding the Project. The results of these interviews formed the basis for the original CRP that LLNL issued in May 1989. Copies of this plan were made available to the public, and placed in the Information Repositories located at the Livermore Public Library and at the LLNL Visitors Center.

LLNL/DOE have been in communication with the public about the Project mainly by:

- Meeting with the CWG.
- Distributing a quarterly newsletter, as well as periodic fact sheets.
- Maintaining two information repositories.
- Setting up and distributing the results of offsite water sampling activities.
- Setting up tours and responding to general information requests.
- Holding large public meetings.
- Meeting with members of the public, including the Technical Advisors hired by a local public interest group as part of the EPA Technical Assistance Grant (TAG) program.

Each of these activities is described in the pages that follow.

### **5.2.3. CWG Meetings**

DOE/LLNL established the CWG in 1989 to provide an ongoing forum to advance understanding of technical issues and Project decisions, community interests, and the Superfund process. The original group was composed of nearby landowners, representatives of a local public interest group; interested individuals; the City of Livermore; and representatives of the U.S. EPA, DTSC, and RWQCB. Through the close of the CWG's first term (March 1993), the CWG met quarterly and sometimes more often, depending on the status of the technical and regulatory aspects of the Project.

A total of 22 people signed up for the CWG in 1989. All those who expressed interest in the group were invited to become members. Over the years, a number of people dropped out of the CWG for various reasons. By March 1993, 13 people considered themselves to be CWG members, three of whom were active in the same public interest group: Tri-Valley Citizens Against a Radioactive Environment (Tri-Valley CAREs). Most often, between four and six community CWG members attended; all of the regulatory agency/City of Livermore CWG members usually would attend the meetings.

DOE/LLNL worked to distribute and explain technical information to the CWG and identify key issues of concern. Steps were taken to respond to those concerns by providing additional information, making changes to certain aspects of the Project or when changes were not possible, by providing the reasons for not taking the proposed action. CWG meetings were (and will continue to be) open to the public. Summaries were prepared and distributed following each meeting.

### **5.2.4. Ground Water Update and other Fact Sheets**

Distributed several times a year, the *Ground Water Update* reflects DOE/LLNL's desire to regularly inform the community about the Project. This multipage fact sheet is distributed to more than 1,800 individuals and organizations. The first edition was published in June 1989.

DOE/LLNL have distributed other fact sheets, as appropriate. For example, a fact sheet on the proposed cleanup plan was distributed in October 1991, prior to the opening of the public comment period. The fact sheet was written specifically to facilitate community understanding of the proposed plan.

### **5.2.5. Information Repositories**

DOE/LLNL established two Information Repositories in 1988 to provide locations for interested members of the public to review Project-related reports. One repository is located at the Livermore Public Library, 1000 South Livermore Avenue. The other repository is at the LLNL Visitors Center on Greenville Road. The Visitors Center also contains the Administrative Record, which is comprised of all the documents that formed the basis for LLNL's final cleanup plan selection.

### **5.2.6. Support to Offsite Private Well Monitoring Program**

Project staff arrange sampling times and locations that are convenient to those residents and businesses affected by the offsite well monitoring program. Follow-up includes mailing a letter that explains the significance of the results.

### **5.2.7. Tours and General Information Requests**

DOE/LLNL conduct tours on a regular basis, and on request, for interested members of the public and for the press. On Family Day in 1990, special sitewide tours were conducted for a number of groups. In 1991, tours were conducted of the pilot study treatment units for CWG members and the press. In October 1992, DOE/LLNL sponsored an Environmental Day. The event featured exhibits and extensive tours designed to inform and educate the public on all aspects of LLNL's environmental cleanup and compliance activities. Innovative environmental projects also were featured. In December 1992, LLNL conducted a special tour of one of these research projects (the solar detoxification unit) for two interested CWG members. Requests for general information about the Project are handled by Area Relations staff.

### **5.2.8. Public Meetings**

DOE/LLNL have held two public meetings that were specifically focused on the Project. The first meeting was in May 1988 to provide a general overview of the Project and its personnel. Project and DOE staff presented information and answered questions.

DOE/LLNL held a public meeting on the proposed cleanup plan (*PRAP*) on November 6, 1991, as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process. About 80 people attended the meeting. The Notice of Availability for the *PRAP* was published in three local newspapers at the beginning of the public comment period. The public comment period on the *PRAP* was extended by 30 days in response to a community request. The total public comment period ran for 60 days.

At the November 6, 1991 public meeting, 15 people read comments into the public record; 16 letters were received, some of which were quite detailed. In general, those commenting accepted

the technical aspects of the proposed cleanup; most wanted stronger funding commitments and a more detailed implementation schedule. They also asked for continued public involvement and a faster cleanup than the proposed 53 years. These issues had been discussed in past meetings with the CWG as well as with Tri-Valley CAREs' Technical Advisors. LLNL responded to all comments on the PRAP in a *Responsiveness Summary* document, which was included as an attachment to the ROD.

### **5.2.9. Contact with Technical Assistance Grant (TAG) Advisors**

A local public interest group (Tri-Valley CAREs) hired two Technical Advisors under the Technical Assistance Grant (TAG) program. Under this program, EPA can provide up to \$50,000 to a community group to hire a Technical Advisor(s) to monitor investigation and cleanup work at a Superfund Site. In 1989, Tri-Valley CAREs was awarded such a grant for the LLNL Livermore Site cleanup Project. DOE has since reimbursed EPA for the cost of Tri-Valley CAREs' TAG. EPA is the official administrator of the grant.

The Technical Advisors have attended some CWG meetings and submitted comments to DOE/LLNL regarding Project reports. LLNL has provided copies of Project documents, conducted tours for, and responded to, the Technical Advisors' questions. In July 1991, DOE/LLNL initiated an all-day meeting with the Technical Advisors and a representative from the citizens group. During that same week, LLNL provided one of the advisors with work space and resources for a week to review Project-related documents. In mid-1992, LLNL and DOE proposed to the citizens group that they begin meeting (or having conference calls) on a regular basis with the Technical Advisors, upon the release of drafts of key Project documents. To date, three such conference calls have occurred. The first took place in September 1992, regarding the *Draft RAIP*. The second occurred in November 1992, regarding the *Draft Remedial Design Report No. 1*. The third occurred in March 1993, regarding the first draft of this revised CRP. A summary of these calls is routinely prepared by DOE/LLNL and sent to Tri-Valley CAREs and its advisors for their review.

## **6. Projected Technical Activities During the Design and Implementation Phases of the Project**

With the signing of the ROD, the Project began a new phase of technical activities: design and implementation of the cleanup plan. As mentioned earlier in this document, the primary Project work will be to build, operate, and monitor the treatment facilities and their associated extraction wells. Work also will continue on refining ground water models, monitoring for any new contamination, and optimizing the cleanup techniques. Particular attention will be paid to how well the cleanup remedies are meeting their goals.

In the first few years of the cleanup, the focus of Project activities will be on preparing regulatory documentation (e.g., the Remedial Design documents), getting the treatment facilities up and running, refining extraction locations, and installing extraction wells and piezometers. Once the treatment facilities are in place, monitoring of the ground water extraction and treatment facilities for performance goals, and making the necessary modifications, will be

important. The refinement of ground water flow and transport models that simulate the progress of the cleanup and investigations of potential past contaminant source areas will be continuous activities. Similarly, Project staff plan to keep abreast of continuing advances in the field of hazardous and radioactive waste remediation for applicability to their project. Many of these advances are emerging from work being conducted at LLNL and other DOE facilities.

This section discusses upcoming documents that DOE/LLNL will be preparing for the Project, as well as the overall approach to remedial design and implementation.

## **6.1. Document Preparation**

The primary documents and reports that DOE/LLNL will be producing will be:

- Remedial Design documents.
- Remedial Action work plans.
- A compliance monitoring plan.
- A contingency plan.
- Periodic reports to regulatory agencies.
- Reports on remediation technology and modeling advances.

A brief description of each of these documents follows:

### **6.1.1. Remedial Design (RD) Documents**

The RD documents implement the remedial actions for the LLNL Livermore Site. Information in the RD documents includes process and instrument diagrams and system descriptions, construction schedules, estimated dates for important remedial milestones, and cost estimates for implementing the remedial measures.

Five RD documents will be submitted for regulatory agency and community review between 1992 and 1994:

1. Draft RD1 covers Treatment Facilities A (TFA) and B (TFB) and their associated extraction wells and piezometers.
2. Draft RD2 will cover Treatment Facilities C (TFC) and F (TFF) and their associated extraction wells and piezometers.
3. Draft RD3 will be for Treatment Facility D (TFD), Treatment Facility E (TFE), and the Building 518 Treatability Study.
4. Draft RD4 will be for the Trailer 5475 Area.
5. Draft RD5 will cover Treatment Facility G (TFG).

The schedule for submitting these documents is presented in the RAIP.

### **6.1.2. Remedial Action Work Plans**

Remedial Action work plans will also be submitted with the draft RD documents. These work plans will present the Remedial Action team and the Quality Assurance/Quality Control (QA/QC) plan for construction. They will also present the Preliminary Operation and Maintenance Plans and establish monitoring and reporting schedules. In addition, the work plans will include the Health and Safety Plans (HSPs) for construction, operation, and maintenance, and the requirements for offsite shipment of hazardous waste and project closeout. For all RD documents, the QA/QC and HSPs will be the same.

### **6.1.3. Compliance Monitoring Plan**

At the time this Revised CRP was prepared, details of the Compliance Monitoring Plan still were being developed with the regulatory agencies. Current plans are for this document to be a compilation of the following three documents:

- Data Analysis Plan (applicable to all RD documents).
- Data Management Plan (likely to include modeling results, plume capture analyses, isoconcentration contour maps, and documentation of mass removal).
- Quality Assurance Project Plan (applicable to all RD documents).

### **6.1.4. Contingency Plan**

As with the Compliance Monitoring Plan, details regarding the Contingency Plan are still in progress. Currently, DOE/LLNL expect that this document will plan for contingencies for such events as funding reductions, inability of the treatment systems to capture the plume, and changes in Project management (e.g., contractors).

### **6.1.5. Periodic Ground Water Project Reports**

DOE/LLNL will continue to prepare Ground Water Project reports describing overall Project activities. These reports will include self-monitoring reports for National Pollutant Discharge Elimination System (NPDES) permits. The reports will be issued on a monthly (e.g., the LLNL Monthly Progress Report), quarterly, and annual basis.

### **6.1.6. Reports on Remediation Technology and Modeling Advances**

The findings and conclusions of ongoing technical work in such areas as advances in environmental research and development will be reported in LLNL *Monthly Progress Reports* and as stand-alone publications placed in the Administrative Record. They are also reported at technical conferences and appear in refereed technical journals. As appropriate, these findings and conclusions will be discussed with the regulatory agencies during the 5-year Project review.

## **6.2. Overall Approach to Remedial Design and Remedial Action Implementation**

The remedial actions described in Section 4.4 will be conducted in a phased approach. Information from actual, in-the-field results will be compared against the *predicted* effectiveness

of the remedial actions (based on modeling), before proceeding with subsequent phases. DOE/LLNL will submit five RD documents for regulatory agency and community review. The current schedule for submittal of those documents is in the RAIP. The seven planned treatment systems for the 24 initial extraction locations will be constructed over a period of 3 years. This phased implementation is necessary to be consistent with projected funding levels. Benefits of this phased approach include:

- The opportunity to test and optimize specific ground water extraction and treatment system designs prior to employing them at other parts of the site.
- The opportunity to evaluate extraction well design, efficiency, performance, and the vertical and horizontal extent of hydraulic capture zones, prior to full implementation of the cleanup plan. This will enable optimum development of the extraction well field.

Dynamic management of the well field and cleanup optimization through field monitoring and modeling are integral to DOE/LLNL's approach to the planned phase-in of the remedial actions. As the initial extraction wells are installed, they will be pumped continuously, and wells and piezometers in the surrounding vicinity will be monitored to determine actual hydraulic capture areas and optimum extraction rates. If the hydraulic capture objectives of a particular well or wells are not met, additional wells will be installed to achieve complete plume capture and/or source remediation. Hydraulic and chemical data from each phase of well installation will be used to refine the design and implementation of the subsequent phases. Strategies for implementing the dynamic well field management and optimization include:

- Periodically producing three-dimensional representations of the contaminant distributions in the affected areas.
- Analyzing the piezometric head distributions within, above, and below the depth interval(s) that are being pumped.
- Adjusting pumping and injection rates and locations when necessary to improve the progress of cleanup while maintaining hydraulic control of the contaminant plumes.

Simulations of ground water flow and contaminant transport will be used to supplement the interpretation of field data and aid in the decision-making process. Modeling will be conducted to select the optimum locations for extraction and injection wells, and to predict the vertical and horizontal hydraulic capture zones and contaminant removal impacts of each extraction well.

To maximize contaminant removal and prevent the development of "stagnation zones" (pockets between the extraction wells where water will become stagnant and small areas of contamination will remain), DOE/LLNL will vary the extraction rates and locations over long periods of time. There also are plans to reinject and/or recharge treated ground water to eliminate these stagnation zones and flush contaminants more rapidly from high concentration areas. Modeling will be used to select the optimal extraction and injection locations and rates to increase contaminant mass removal and reduce overall cleanup time.

In addition to the actual cleanup work, DOE/LLNL will be continuing to investigate other potential sources of new contamination identified in the RI. Thirteen potential source areas at the LLNL Livermore Site are still under investigation. The results of these investigations are

reported in LLNL monthly and quarterly progress reports as they are completed. If investigation results indicate that an area requires a soil or ground water cleanup approach that is fundamentally different from the ones outlined in the ROD, DOE/LLNL would amend the ROD after conducting a public comment period and holding a public meeting.

Modeling will also be used to determine whether soil (vadose zone) contaminants will require remediation. After contaminants in the vadose zone are sufficiently characterized, modeling will be conducted to evaluate whether the vadose zone contaminants would impact the underlying ground water in concentrations above MCLs. If such a potential exists, cleanup alternatives will be evaluated with the regulatory agencies to determine if modification of the cleanup approach is necessary to protect human health and the environment. If a post-ROD change is warranted, DOE/LLNL will notify the public about the change through either documentation in the post-ROD file, an "Explanation of Significant Differences," or an "Amended ROD." (See Section 8.3.11 for a definition of these terms).

### **6.3. Five-year Reviews with the Regulatory Agencies**

As specified in the ROD, the progress of the cleanup will be formally reviewed with the regulatory agencies at least every 5 years. This will allow evaluation of new remediation technologies as they are developed. If new cleanup requirements are promulgated or existing requirements are modified in the future, they will be evaluated at the 5-year reviews specified in the ROD for the Project to determine if:

- Achievement of the requirement(s) is applicable or relevant and appropriate.
- Achievement of the requirement(s) is necessary to ensure that the remedy is protective of human health and the environment.

While formal Project reviews will occur at 5-year intervals, the public should know that reviews—both internal and those that are externally conducted with the agencies—are occurring all the time. DOE/LLNL are constantly conducting internal reviews of their work. On a monthly and annual basis, they submit reports to the regulatory agencies.

The overall DOE/LLNL philosophy of the remediation is to achieve a rapid, efficient, and cost-effective cleanup.

## **7. Results of the Community Assessment Process**

### **7.1. Survey Overview and Other Relevant Data Used**

A community assessment survey was initiated in November and December 1992 by DOE/LLNL to document the status of the LLNL Livermore Site community relations program. The survey also was conducted in accordance with CERCLA requirements to re-evaluate the community relations program prior to the beginning of the RD process. The objective of the community relations survey was to determine such things as: community understanding of the Project, community interest and information needs, and the best ways to continue working with

the community as the cleanup is planned, designed, and implemented. The community relations activities discussed in this revised CRP were based largely on the results of the survey. However, when necessary, community preferences were balanced against DOE/LLNL Project goals and resources in the development of the final CRP.

The survey was designed to provide information in six key areas:

- Knowledge of LLNL Livermore Site Superfund problems and history.
- Concerns about the site and attitude toward cleanup.
- Types and effectiveness of communication.
- Contact with site officials.
- Attitudes about the CWG and recommendations for improvement.
- Contact with LLNL staff and activities that were and were not effective in describing the cleanup.

Fifty-eight interviews were conducted in November and December 1992 by DOE and community relations specialists from ICF Kaiser Engineers. Approximately one-half of the interviews were conducted in-person; the rest were conducted by telephone. Interviewers used a 28-question survey that incorporated both open- and closed-ended questions. Appendix B provides the tabulation of responses. To protect the confidentiality of the data, the interviewee responses have been aggregated. One exception to this approach is Question 4, where the information is broken out by interview group to reflect the contrasting concerns voiced by the different segments of the community.

Twelve interview groups representing a broad cross section of the community, in addition to groups active with the Project, were selected as interviewees. For comparison purposes, a number of people who were interviewed for the original CRP (May 1989) were interviewed this time, as well.

The groups interviewed for this revised CRP include: CWG members (both community members and regulatory agency/City of Livermore representatives); former CWG members; past attendees of CWG meetings; LLNL staff, management, and randomly selected employees; business representatives; public interest groups; LLNL neighbors; elected officials; and city and county representatives. A total of 58 people were interviewed.

Information from an August 1992 CWG meeting, during which community relations issues were discussed, has also been incorporated into this revised CRP. This information is summarized in Appendix C.

## **7.2. Current Community Concerns**

Concerns expressed by the respondents fell roughly into the following five categories. The number of comments made within each category is shown in parentheses following each category. Some interviewees made several comments on each category topic. Thus, the

parenthetical numbers should not be equated with numbers of people making those comments. Also, respondents often commented on one or more subjects while others had no comments.

- LLNL's Approach to the Cleanup and Cleanup Methods Used (23 comments)
- Communications and Community Relations (18 comments)
- Health and Environmental Issues/Contaminant Risks (15 comments)
- Long-term Funding/Administration of Project (8 comments)
- Other Laboratory Activities (3 comments)

Comments on each of these categories are discussed below.

### **7.2.1. LLNL's Approach to the Cleanup and Cleanup Methods Used**

Among the general public, there is a high level of confidence in DOE/LLNL's ability to deal effectively with the contamination at the LLNL Livermore Site. The 23 concerns expressed by 13 people about LLNL's approach to the cleanup focused on specific aspects of the cleanup, rather than the ground water treatment program as a whole. All but three of these concerns were expressed by CWG members and referred to the cleanup's time frame and scheduling, monitoring procedures, acceptable contaminant levels and LLNL's separation of waste management, environmental restoration, and other programs. The timeframe for the cleanup was a key concern.

Of those interviewed, only public interest groups and past and present CWG members expressed concerns about the manner in which LLNL has approached the cleanup and about the cleanup methods themselves. The major issue around the cleanup approach was scheduling. Four CWG interviewees would like to see the cleanup schedule shortened, with more public input into scheduling decisions. Three people suggested that schedules for cleanup milestones be published.

Two interviewees from the CWG and a public interest group criticized LLNL for separating the cleanup from current operations. They believe, despite arguments, legislation, and regulation to the contrary, that the separation of the cleanup precludes LLNL from addressing issues of current practices that could contribute to future contamination.

Monitoring of the cleanup was another area of concern for three CWG members. Two interviewees questioned the reliability and adequacy of LLNL's treatment monitoring. Monitoring with respect to radioactive substances (including tritium and plutonium) was mentioned by two people as an issue of particular concern. The ultimate disposal of the contaminants removed from ground water was an issue for one interviewee. Two interviewees questioned the effect of the drought on the LLNL Livermore Site's problems.

### **7.2.2. Communications and Community Relations**

Overall, comments about DOE/LLNL's Livermore Site community relations program were favorable. CWG members expressed over half of the 18 comments received about community relations and internal communications. Comments focused on LLNL's attitudes and approach

towards the public, the role of the CWG, the importance of internal communications within LLNL, and the need for continued public information about the cleanup.

A few CWG members responded that they still believe DOE and LLNL are being too secretive about operations, and that LLNL needs to pay more attention to community concerns, although one CWG member did express appreciation for LLNL's consideration of community concerns about air stripping.

In terms of the CWG, all 13 CWG interviewees felt that the group was a useful forum, with approximately three CWG interviewees commenting that the role of the group needs to be defined more clearly. People involved with the CWG have different perceptions of this role. During the interview process, this role was described in a few conflicting ways: as a Laboratory watchdog, as an integral part of DOE/LLNL's decision-making process, and as an informational forum. One CWG member believed that individual CWG members need to make a greater commitment to understanding the issues and "doing their homework" before meetings so that time can be spent productively. Another CWG interviewee wanted to see DOE/LLNL emphasize continuous public involvement throughout the cleanup process, rather than interacting with the public during isolated comment periods on specific documents. Continuing the CWG was a method suggested by most CWG members for accomplishing better, more frequent communications with the public.

Three regulatory agency representatives felt that the different LLNL departments dealing with environmental issues need to be in better communication. No specific examples were cited.

### **7.2.3. Health and Environmental Issues/Contaminant Risks**

Fifteen comments were received on this subject; comments represented eight different interview groups. In general, the 12 interviewees referred to the ground water contamination and its potential effect on human health and water supply, as well as the presence of tritium as a contaminant. Eight of the interviewees were either from the CWG or a public interest group. Several people interviewed had a general concern about health issues, but could not describe concerns in detail because they were unfamiliar with the specific contamination at the site.

Two interviewees were concerned about the effect of the contamination and the treatment system on the water supply. One person wondered what effect the contamination would have on availability of water: if the aquifer becomes contaminated, would it cause water shortages and/or place a greater burden on other water supplies? A neighbor was concerned that if LLNL pumps and treats a million gallons of water per day, adjacent water supply wells could dry up. In addition, the neighbor was concerned that contaminants could enter the water supply system, and wondered whether their well should be independently tested. A few people questioned the adequacy of Federal cleanup standards.

A public interest group criticized LLNL for "downplaying" the seriousness of tritium contamination, and for attributing contamination problems to the Navy, saying that LLNL reduces its credibility by not taking enough responsibility for the problem. A CWG member who also represents a public interest group was concerned that new tritium release locations have

been discovered since the RI was completed, and another interviewee believed that not all contaminants have been identified.

#### **7.2.4. Long-Term Funding/Administration of Project**

Seven CWG members and one businessperson were concerned about the continuing availability of funds over the long life of the cleanup Project. Potential changes in LLNL's mission and/or its relationship with DOE cause some CWG members to worry about where future funds for the Project would come from. They also are concerned about potential delay or complete stoppage of work on the cleanup if funds are not committed.

Two regulators expressed concern about the changes in administrative staff that would occur over the life of the Project, and mentioned the importance of careful documentation of all research and Project decisions for future use.

#### **7.2.5. Other Laboratory Activities**

One LLNL employee, one public interest group member, and one site neighbor stated that they were most concerned about ongoing Laboratory operations and the potential for contamination from these current activities. Radioactive contamination was of particular concern to two people, including one LLNL employee who was dissatisfied with the way that news about spills and other problems is disseminated internally. In that person's opinion, LLNL does not distribute information in a timely manner, or does not distribute it at all. No other employees interviewed shared that view. Other interviewees wanted to comment on other site activities, but were asked by the interviewer to discuss only the Superfund site.

#### **7.2.6. No Concerns**

Twenty-six of the interviewees, from nine interview groups (including two CWG members), expressed no concerns about the Project cleanup activities. These people said that they trusted LLNL to conduct appropriate and responsible remedial actions. In fact, 10 people from seven of the groups interviewed expressed concern that too much money was being spent on the Project cleanup since it was not a critical problem, and health was not being endangered. LLNL staff and management, randomly selected Laboratory employees, and business representatives accounted for over half of these comments. Those people who commented that the money being spent on the cleanup was excessive cited two factors: the inefficiency of government and the costs associated with the work imposed by environmental regulations. One interviewee blamed the media for "blowing the problem out of proportion."

### **7.3. Community Understanding of and Attitudes Toward the Project**

Almost 75% of those interviewed for the CRP considered themselves to be moderately to well-informed about the cleanup. (Note: LLNL staff and regulatory agency representatives were not asked any questions on their understanding or attitudes about the Project.) Almost half have known about the cleanup since the beginning of community relations activities pursuant to the Superfund process in 1983. When it came to the details of the cleanup, most interviewees had a general understanding of cleanup issues. There was a general knowledge of the nature and extent

of the contamination, to the point that a good number of those interviewed identified solvents/VOCs and tritium as contaminants in soil and ground water, but detailed knowledge of contamination was limited to a few individuals directly involved in the work. Among community CWG members, understanding of the Project was about the same as that of the general public. In some cases, their answers reflected less knowledge than the average. Four of the elected officials interviewed (including two newly elected) had limited or no knowledge of cleanup specifics. Most officials interviewed rely heavily on staff to keep them informed, as well as trusting LLNL to deal with the problem.

Almost 70% of the respondents did not believe that the site poses a current public health risk. Many stated that the contamination would not become a health threat as long as the cleanup is continued. Responses to a question on the status of the Project indicated that the public is confused about the Superfund process and where the site stands in relation to cleanup milestones. Only three community CWG members identified the current technical stage of the Project cleanup process.

In addition, only about 40% of those interviewed were aware that the cleanup is anticipated to take over 50 years to complete. Although those who knew the anticipated schedule understood it for the most part, the few who felt the time frame was too long were very strong in their opposition. Several CWG members were especially critical of the time frame.

About half of the respondents perceive that LLNL has improved its handling of the cleanup over the past several years, citing DOE/LLNL's greater willingness to share information with the community as a significant advance. No one believed that LLNL was doing a worse job in terms of addressing site problems. However, several public members of the CWG still believe DOE/LLNL does not provide adequate information and continues to function under a "veil of secrecy." Interviewees also stated that LLNL has improved its technical handling of the Project, paying more attention to environmental issues in general.

As far as the technical side of the cleanup is concerned, over half of the interviewees stated that DOE/LLNL are doing enough or too much in terms of their approach to remediation. Over 20% believe that the level of contamination and associated health risks do not merit the amount of money, time, and effort being spent on it.

#### **7.4. Preferences for Community Relations Activities**

News media and the *Ground Water Update* led as primary sources of information both in the past and expectations for the future, except for Laboratory employees who receive information most readily from *Newsline*, the LLNL employee newspaper. The *Update* received generally favorable comments, with more than half of all comments coming from CWG members and public interest group members. Interviewees noted that the *Update* has become simpler and more understandable over time, and we heard requests to make it still less technical. Two specific suggestions were to have the *Update* regularly explain the interrelationships of different Project review processes and different programs at LLNL as well as to summarize reports and plans like the RAIP and RDs. CWG members noted that fact sheets (the *Update*) have become more clear and simple over time. Two or three said they would like to see future *Updates* include a column written by an outside group, such as the CWG, a regulator, or the Technical

Advisor of Tri-Valley CAREs. While interviewees noted that media coverage is often partial, summary, or sporadic, and may not reflect LLNL's point of view, the news media remain a prime source of information. One interviewee suggested that LLNL issue news releases more frequently.

Tours and meetings sponsored by DOE/LLNL were a close second as information sources, both past and future. Most interviewees commented very positively about tours, with some criticism by public interest group representatives that they have been too PR-oriented in the past. Interviewees found that their fears of LLNL's activities were greatly reduced after taking a tour. Some LLNL staff interviewees wondered whether the number of people reached with tours justifies the effort that they require. The LLNL-sponsored CWG meetings were seen to have improved over time, with fewer presentations, more question-and-answer sessions, and use of a facilitator. Interviewees from public interest groups asked specifically that people from other programs besides the Project attend CWG meetings and that, both at CWG meetings and other LLNL-sponsored meetings about the Project, LLNL be willing to address questions about issues unrelated to the Superfund cleanup. Two Laboratory managers also suggested that, in the future, there may be opportunities for public participation in discussing broader Laboratory issues. Meetings sponsored by other groups were mentioned less frequently as information sources, but past presentations by LLNL to a wine growers' luncheon, Rotary Club, and Sierra Club were praised as informative. One interviewee suggested the Parent Teachers Association might be a good forum for LLNL presentations.

Neighbors, *Newsline*, and direct contacts with DOE/LLNL staff were the third most frequently named as past sources of information, with interviewees projecting reduced dependence on neighbors and *Newsline* in the future, but continuing dependence on staff contacts at about the same level. Four CWG members expressed interest in receiving the *Newsline*. Charlie Biederman, Paul Conners, Margaret Hammond, Bert Heffner, Pat Post, and Paul Thrash were mentioned as being very responsive. Only six interviewees reported past use of information repositories, but 16 people recommended that repositories be continued in the future. Ten people had received DOE's first newsletter, and 22 interviewees expressed interest in receiving it in the future.

About half of the interviewees said they had never attended a CWG meeting, either because they were unaware of the group, disinterested, lacked the time, or get their information elsewhere. The 30 people who have attended CWG meetings include CWG members, former members, past attendees of meetings, Laboratory staff, one county official, and one elected official. Of those who had attended a meeting, almost all said they found it useful. Some CWG members and past members said that they feel that the group reaches only a small part of the community and should include members from various city departments, the City Energy and Environment Advisory Committee, and other segments of the community. All 34 interviewees familiar with the CWG, including LLNL staff and managers, said that the group should be continued. Six CWG members who were interviewed expressed interest in continuing their membership; three were unsure. Four felt that membership terms would assist in broadening representation and encouraging more participation; three felt that members should stay as long as they wish, with the group recruiting new members annually as needed to fill vacancies. Those who considered stepping down mentioned the need for new blood and broader representation.

Of those people who have attended CWG meetings, primarily as members, approximately 12 believe that CWG meetings have been useful in meeting their needs. Most CWG members reported having spoken to others about the activities of the group.

Among CWG members, opinions differ about the effectiveness of the group. Some members are frustrated at what they see as DOE/LLNL's "adversarial" posture and unwillingness to be influenced by the CWG. However, just as many members believe they have influenced LLNL's actions and that the group has developed into a forum for real discussion of issues important to the community. Several members were sensitive to other agendas CWG members were bringing to the meetings, and expressed frustration at what they saw as attitudes that blocked discussion of, and progress on, differences of opinion. Three members expressed that John Ziagos' "people-skills" had greatly enhanced CWG meetings.

Members of the CWG offered additional information at a CWG meeting where the group was asked to identify ways in which they found the group effective, and areas for improvement. On the positive side, members said they feel that the group has had some impact on the Ground Water Project and on DOE/LLNL's attention to documentation. They feel the CWG has done good work and provided good input to LLNL. They noted that they have received good logistical support from LLNL in recent months and have been receiving documents in a timely manner. Meetings have become more informal and they think that improves the discussion. However, they sometimes feel powerless to affect DOE/LLNL decisions because they are not given the opportunity to comment on things early enough in the process, if at all. They do not have enough autonomy from DOE/LLNL, and logistical support has not always been good. They feel that meetings are confrontational because a few members do not trust DOE/LLNL; they want a better mix of cooperation and confrontation. Procedurally, they would like to find a way to produce more representative group statements when the concerns of one or a few individuals are not shared by the entire group. As in the past, DOE and LLNL will respond in writing to all previously mentioned concerns. (See Appendix H for an example of past issues and DOE/LLNL responses).

## **8. Overview of the Community Relations Program During the Design and Implementation Phases of the Project**

### **8.1. Community Relations Program Goals**

The program described in this section is based on the results of the Community Assessment Survey, additional comments from CWG members, and DOE/LLNL's own assessment of Project needs and resources. The specific objectives of the LLNL Livermore Site community relations program during the design and implementation of the site cleanup are to:

- Provide for an open dialogue on the remaining Project issues between DOE/LLNL and the public so that community concerns can be factored into the ongoing technical work.
- Continue to explain the nature of this new stage to the CWG and the public.

- Provide accurate and timely information about current activities to interested members of the community (at LLNL and elsewhere), including information about other environmental research and development projects that may be applicable to the Project, and ongoing cleanup optimization efforts.
- Seek effective and meaningful ways to help the public evaluate progress toward site cleanup.
- Be responsive to the special information needs of elected officials, regulatory agency representatives, and interested members of the public. One of the ways of doing that will be to provide increased opportunities for tours of Project-related facilities and periodic briefings.
- Respond to changes in community concerns and interest levels about the Project.
- Be aware of the public's interest in other DOE/LLNL environmental projects, and continue to integrate the LLNL Livermore Site community relations program for the Project into LLNL's overall Area Relations office environmental communication efforts.

The activities that DOE/LLNL will undertake to meet these goals are explained in the pages that follow.

## **8.2. Discussion**

Community concerns and information needs have been a factor in LLNL's technical decisions since 1983, when the Project investigations first began. During the design and implementation stages of the Project, DOE/LLNL will continue to balance community concerns with technical, legal, and policy issues that may need to be addressed. DOE and LLNL are committed to maintaining a community relations program throughout the life of the cleanup.

Most of the community relations activities will continue to be informational in nature (e.g., a newsletter). LLNL will continue to simplify the technical information for the general public. Other activities, such as CWG meetings, will provide an opportunity for LLNL and the community to continue a two-way exchange and dialogue.

One of the greatest challenges for DOE/LLNL will be in communicating information about a cleanup Project that is a dynamic and evolving activity. The cleanup will continue to be refined and optimized, as actual field observations show the extent to which predesign estimates and assumptions were accurate. Initial conclusions regarding cleanup progress may change over time due to inherent uncertainties associated with large-scale ground water and soil cleanups. DOE/LLNL will seek to appropriately convey the nature of this process to the public.

One of the major concerns expressed by the community—that there be continued and adequate Program funding by Congress—is a variable over which LLNL and DOE have little control. However, DOE will continue to request justifiable funds in its annual request to Congress. Nevertheless, funding is likely to be an ongoing issue throughout the life of the Project. This can make for a bumpy path to cleanup because funds may not be available to allow a smooth, regular work flow. Finding a way to help interested members of the public follow progress towards cleanup goals will be particularly difficult. Progress cannot be simply

measured by a simple graph, such as one showing reduction in average contaminant concentrations over time, as some community members have suggested. Given limited general community interest, compared to the demonstrated willingness on the part of some community members to keep abreast of this very complex project, DOE/LLNL are working to provide the public with a meaningful way to follow and understand Project progress. Where temporary setbacks arise, there is a need for all parties to communicate quickly and honestly to maintain an open dialogue.

Finally, new technologies may become available in the future that could be incorporated into the current cleanup approach. DOE/LLNL will need to work with the community to explain the advantages and disadvantages associated with a fundamental (vs. significant) change in the cleanup approach. This will be done before any legally required public meeting is conducted to receive formal comments on a proposed change.

### **8.3. Community Relations Activities**

For the most part, DOE/LLNL will continue providing the wide range of community relations activities that characterized the initial (precleanup decision) stage of Project activities. Survey participants and the original CWG members expressed strong preferences for a periodic newsletter like the *Ground Water Update*, LLNL meetings, tours, and, when appropriate, direct contact with LLNL or DOE staff. Media were also expected to continue being an information source, although few interviewees wanted to rely on the media as the primary source of Project news. A number of suggestions were received for improving or emphasizing these activities. DOE/LLNL's plans for incorporating those suggestions are described below.

DOE/LLNL will provide for one- and two-way communication with the community through:

1. Meeting with a CWG.
2. Distributing a periodic newsletter.
3. Conducting tours and establishing exhibits that focus on project activities and environmental research.
4. Responding to general information requests.
5. Setting up meetings, briefings, and presentations.
6. Communication with Technical Assistance Grant (TAG) Advisors.
7. Continuing to maintain two information repositories.
8. Supporting the offsite private well monitoring program.
9. Interacting with the media.
10. Establishing a community relations contact.
11. Notifying the public of changes in the remedy after the ROD is signed.

Each of these activities is described in the pages that follow.

### 8.3.1. CWG Meetings

DOE/LLNL will continue to support a CWG until the final RD document has been finalized. Currently, the expected release date for the last RD document (RD5) is fall 1994. Thus, the CWG will continue for approximately one and one-half more years. At that time, the group's usefulness will be reevaluated with input from the CWG and the community-at-large. DOE/LLNL will make the final decision about DOE/LLNL's future support of a work group process.

DOE/LLNL's purpose in continuing a work group forum is to provide two-way communication between LLNL/DOE Project staff and the community. The focus of discussions will be on the LLNL Livermore Site environmental restoration work. DOE/LLNL will work with the CWG to continue identifying key issues of concern. DOE/LLNL will respond to those concerns by providing additional information, making changes to certain aspects of the Project or, when changes are not possible, by providing the reasons for taking no action.

DOE/LLNL are in the process of expanding current membership to include broader community representation. Some suggested representatives provided by interviewees for this Draft Final Revised CRP are: science teachers, Zone 7 Water District officials, realtors, developers, the wine industry, the Chamber of Commerce, and the City of Livermore Environmental and Energy Committee.

LLNL discussed the concept of broadening the CWG at a meeting with the original CWG members held on December 16, 1992. Prior to the CWG meeting held on March 25, 1993, DOE/LLNL developed broad membership categories that could serve as a model for the new CWG. DOE/LLNL contacted all regulatory agency representatives prior to that meeting to ascertain that this approach was acceptable. DOE/LLNL then called all of the original CWG members prior to the March 25, 1993 meeting to explain the process that LLNL proposed to go through to broaden the group. During those phone calls, no one in the CWG objected to the approach or to the idea of DOE/LLNL moving ahead to broaden the group.

Several CWG members expressed a concern about LLNL's approach to broadening the group at the March 25 meeting (the last formal meeting for members of the original CWG). They asked that they be given an opportunity to contact LLNL after that meeting with suggestions in three areas: membership categories, the process for broadening the group, and the individual group members. No suggestions were submitted as of the March 31-deadline. LLNL called CWG members in late April regarding whether comments would be forthcoming, and was told that they would not. DOE/LLNL then began moving forward with plans for broadening the group.

#### **How the New Group Will be Formed**

All of the original CWG members who are interested in continuing their membership will be "grandfathered into" the new group. The new group will have representation from the following categories: regulatory agencies (EPA, DTSC, and RWQCB), City and County (City of Livermore Water Department, Alameda County Resource Conservation District), neighbors and other interested members of the public not affiliated with public interest groups (3-5 people), public interest groups (Tri-Valley CAREs), social and educational institutions (such as Las

Positas College and an appointee of the Livermore Unified School District), and businesses and professional organizations (e.g., Chamber of Commerce, wine industry, realtors, and developers).

To gain participation from currently un- or under-represented groups (e.g., businesses, students, wine industry), LLNL will ask for nominations/recommendations from people like the Mayor of Livermore, the Chamber of Commerce, and the Livermore Unified School District. LLNL will work with established organizations and political entities to get their recommendations.

### **How the Group Will Function**

Since regular attendance is critical to the success of a work group, DOE/LLNL will seek to establish a mechanism to remove or replace those who consistently miss meetings. Members will periodically be asked to evaluate the group's progress toward meeting the CWG's stated purpose and goals. DOE/LLNL will draft a statement on the CWG purpose and operating principles (i.e., the group charter) prior to the first meeting of the new group. The first task of the group will be to discuss, modify, and agree on a group charter.

CWG meetings will continue to be open to the public; a press release will be sent out in advance of each formal meeting. When scheduling permits, the meetings also will be announced in the publication mailed to those on the Project mailing list. Meeting summaries will be prepared and distributed to CWG members as quickly as possible following each meeting.

All of the formal CWG meetings will be facilitated, with the goal of reaching group consensus on any comments that the CWG may want to make. Where consensus is not possible, individual comments may be noted. The facilitator will attempt to balance competing opinions in the group to allow for equal representation on the issues being discussed.

The decision regarding CWG meeting topics and the frequency of meetings will be largely left up to the CWG members. DOE/LLNL does reserve the right to place constraints on the group. For example, the meeting topics must be limited to issues regarding the LLNL Livermore Site cleanup Project. Also, at this time, DOE/LLNL cannot release to the group documents that have not yet gone through the formal review process (e.g., preliminary documents). However, DOE/LLNL will make every effort to keep the CWG abreast of the projects that the Project staff are working on so that the CWG can discuss, ask questions, and advise on decisions.

For those documents on which DOE/LLNL are requesting feedback (e.g., the draft RD documents), CWG members will be expected to review documents in advance of each meeting; LLNL will see that documents are sent out simultaneously to the CWG and regulatory agencies to provide time for thorough review. In addition, CWG members will begin receiving copies of all regulatory comments on those documents.

Separate funding for the CWG will not be provided. For example, DOE/LLNL will not provide additional funding for Technical Advisor support such as is currently being provided to Tri-Valley CAREs under EPA's TAG program. Incidental expenses (up to \$10 per quarter) will be provided for mailings, copying, etc. Requests for additional resource assistance will be considered separately on an as needed basis by the LLNL Area Relations office. Participation in

the CWG is not intended to preclude participation on any other LLNL or DOE advisory boards, should they be established.

### **8.3.2. Periodic Newsletters**

DOE/LLNL will produce a periodic newsletter that will discuss Project status and developments. The newsletter will include information on the details of the treatment facility designs. Information about other environmental activities and research projects also may be included. DOE/LLNL will seek to make the newsletter even less technical than past editions have been. The newsletter may also explain the relationship between the Project and other LLNL environmental projects. Contact numbers will be listed in each edition. If desired by the CWG, the newsletter can periodically include information such as the summaries of agreements and group comments made at CWG meetings.

### **8.3.3. Tours and Exhibits**

In 1993, DOE/LLNL expect to offer tours of environmental facilities and projects at the LLNL Livermore Site. The tours will be modeled on the October 1992 Environmental Day tour, which received very positive feedback from the participants. In addition, LLNL expects to continue conducting tours for interested members of the public in other areas of activity and for the press.

As appropriate, DOE/LLNL will put together displays, presentations, and exhibits on various aspects of the Project. At a minimum, the LLNL Visitors Center will offer information about the cleanup through an exhibit, display or copies of the Project newsletters. Use of innovative audiovisual presentations will be encouraged.

### **8.3.4. Information Requests**

LLNL will continue to respond to requests from the community for Project-related information. All requests will be directed to the Area Relations office, which will coordinate a response to the requests in a timely manner.

### **8.3.5. Setting Up Meetings, Briefings, and Presentations**

The Project will make staff available for briefings, meetings, and presentations to interested groups on an ongoing basis, especially when important new environmental cleanup information is released. As the need arises, LLNL Area Relations staff will offer presentations on site environmental activities to public officials and community representatives. LLNL's experience is that meetings with the CWG, are most productive. However, LLNL will consider holding large public information sessions on a periodic basis at important technical milestones, such as 5-year Project review meetings with the regulatory agencies. Such meetings would be well advertised, including placement of paid newspaper display ads and sending public service announcements to KKIQ, the local radio station.

DOE/LLNL encourage informal communication with, and requests from, the public. For example, to the extent that there is interest, CWG members may ask the LLNL Area Relations

office for periodic one-on-one meetings with Project staff, to provide any additional information about the site cleanup in which they might be interested.

### **8.3.6. Communication With Technical Assistance Grant (TAG) Advisors**

DOE/LLNL expect to continue communication with the Technical Advisors hired by Tri-Valley CAREs pursuant to EPA's TAG program. Periodic meetings and/or conference calls will be encouraged, with an emphasis on issues identification and resolution. The Technical Advisors are encouraged to contact Project staff with specific technical questions; DOE/LLNL prefer that questions of a policy nature be addressed in the context of the meetings/calls.

### **8.3.7. Information Repositories**

DOE/LLNL will continue to maintain the two information repositories established in 1988 to provide locations for interested members of the public to review Project-related reports. One repository is located at the Livermore Public Library, 1000 South Livermore Avenue. The other repository is at the LLNL Visitors Center on Greenville Road. The Visitors Center also contains the Administrative Record, which is comprised of all the documents that formed the basis for LLNL's final cleanup plan selection.

### **8.3.8. Support to Offsite Private Well Monitoring Program**

As needed, environmental community relations staff will continue to arrange sampling times and locations that are convenient to those residents and businesses affected by the offsite well monitoring program. Each time a well is sampled, DOE/LLNL will send out the results in a timely letter that explains their significance.

### **8.3.9. Media**

Important events and Project milestones will be announced in news releases. Formal meetings of the CWG also will be announced this way. Each release will be distributed to appropriate area news media (see Appendix E for media contacts). The release may be accompanied by a news conference, as appropriate. Efforts will also be made to periodically educate the local media on Project developments and issues.

The Project will attempt to simultaneously share with the CWG media releases that may come as news to them.

### **8.3.10. Community Relations Contact**

Unless otherwise specified, LLNL Area Relations Manager Bert Heffner will be the community relations contact for all Project activities. Requests for meetings, information, or tours should all be directed to his Area Relations Office: 510-422-9799. His address is:

Public Affairs Department  
LLNL (L-790), P.O. Box 808  
Livermore, CA 94551

Anyone wishing to discuss community concerns and information needs is encouraged to contact Bert Heffner, by mail or by telephone, between 8:00 a.m. and 4:45 p.m., Monday through Friday. A receptionist or answering machine will respond if he is not available.

### **8.3.11. Notifying the Public of Changes in the Remedy after the ROD is Signed**

As required by Superfund law, if new findings affect the remedy selected in the ROD, DOE/LLNL will conduct one of the following activities:

- Document changes to the post-ROD file. If the new information warrants a non significant change, such as minor changes to the type and/or cost of materials, equipment, or supplies used to implement the remedy, DOE/LLNL will document these changes in the post-ROD file.
- Prepare an Explanation of Significant Differences (ESD). If the cleanup approach differs significantly from the remedy selected in the ROD, but does not fundamentally alter the remedy with respect to cost, scope, or performance, DOE will publish an ESD. DOE/LLNL will publish a notice summarizing the ESD in a major local newspaper of general circulation and make the ESD available in the Administrative Record.
- Amend the ROD. If the cleanup approach fundamentally alters the remedy selected in the ROD, DOE/LLNL will propose an amendment to the ROD. A public comment period will be held, along with a public meeting, if there is interest. Following the public comment period, DOE/LLNL will prepare a Responsiveness Summary that provides DOE responses to comments received during the public comment period. The Responsiveness Summary will be made available to the public. An example of a fundamental alteration to the remedy would be reconsideration of the remedial approach selected in the ROD.

## Appendix A

### Groups Interviewed for the Preparation of This Plan

This CRP is based on interviews conducted in November and December 1992 by DOE and community relations specialists from ICF Kaiser Engineers. Groups representing a broad cross section of the community, in addition to groups active with the Project, were selected for the interview process. For comparison purposes, a number of people who were interviewed for the original CRP (May 1989) were interviewed this time, as well. The groups interviewed for the plan are listed below:

Group	Number of interviewees
Community Work Group (CWG)—Community Members (that served through the March 1993 term) Three of these members are active with the same local environmental public interest group.	9
Community Work Group—Regulatory Agencies and City of Livermore Representative (that served through the March 1993 term)	5
Former Community Work Group Members	6
Past Attendees of CWG Meetings	2
LLNL Staff and Management	7
Randomly Selected LLNL Employees	5
Business Representatives	8
Public Interest Groups (responses by two people who represent the same local environmental public interest group are counted under the “Community Work Group—Community Members” category)	3
LLNL Neighbors Randomly Selected from Mailing List	3
Neighbors Whose Wells are Regularly Sampled by LLNL (responses by two additional people whose wells are regularly sampled are counted under the “Business Representatives” and “Community Work Group—Community Members” categories)	1
Elected Officials	6
City and County Representatives	<u>3</u>
<b>Total Interviewees</b>	<b>58</b>

## Appendix B

### LLNL Livermore Site CRP Update Community Interview Responses

#### KNOWLEDGE OF LLNL LIVERMORE SITE SUPERFUND PROBLEMS AND HISTORY

1. Regarding the LLNL Livermore Site Superfund activities, do you consider yourself:
  - 18 Well informed
  - 14 Moderately informed
  - 5 Know the basics
  - 8 Not very well informed
  - 13 Regulators/LLNL staff (not asked question)
  - 58 Total
  
2. How long have you known something about DOE/LLNL's LLNL Livermore Site hazardous/radioactive waste problems and the steps that they're taking (under the Superfund program) to address them?
  - 20 Since 1983 (when LLNL first began addressing site problems)
  - 11 Since 1988 (when LLNL developed and began implementing its current community relations program)
  - 7 2-3 years
  - 4 1-2 years
  - 3 Unaware
  - 13 Regulators/LLNL staff (not asked question)
  - 58 Total

Note: Throughout this appendix, the numbers to the left of each entry indicate the number of comments received in that category. Some interviewees made several comments on each topic. Thus, these numbers should not be equated with numbers of people making those comments. Also, respondents often commented on one or more subjects, while others had no comments.

## 3. Regarding the LLNL Livermore Site Superfund program, can you say what you know about:

## A. The main contaminants (What are they? Are they in the soil, ground water, air? Are they moving; if so, where?)

What are they?

10 VOC

13 Tritium

1 Organic hydrocarbons

7 TCE, TCA, PCE

3 Benzene

1 Chromium

1 Toluene, BTEX

4 Couldn't remember names of contaminants

18 Solvents from World War II

12 Gas, oil

1 Malathion

1 Problems aren't from current operations - Lab very careful now

7 Don't know

13 Regulators/LLNL staff (not asked question)

92 Total

Where are they?

24 Soil

2 Vadose zone

36 Ground water

4 Tritium in air

1 Tritium in grapes

2 Some in atmosphere

6 Don't know

13 Regulators/LLNL staff (not asked question)

88 Total

Are they moving?

21 Ground water plume moving west/towards city

14 Moving

12 Don't know

13 Regulators/LLNL staff (not asked question)

60 Total

## B. The health risks posed by the contaminants

13 Minimal risk because no one's being exposed to contaminants.

- 1 Chronic and acute.
  - 7 No one knows what risks are—carcinogens, birth defects.
  - 4 Depends on if you drink the water or eat the soil; low risk at this point.
  - 4 No risk.
  - 5 Don't know.
  - 3 Lab claims none. By the time it reaches water supply, contamination will degrade.
  - 2 Lab claims none, but interviewee not convinced.
  - 2 Interviewee believes tritium in air is risk.
  - 2 LLNL Health Conservative Risk Assessment says one to two cases of cancer for each person (age 70) over a thousand-year period.
  - 1 Contaminants are within Federal standards.
  - 1 Depends on different standards by groups and whose interest is being served.
  - 1 Bigger issue than actual cleanup.
  - 1 If no risk, Lab wouldn't have to clean.
  - 1 Potential cancer risk is minimal from scientific point of view, but any risk is significant because it has a cumulative effect.
  - 1 Understand analysis says that one in million chance of contamination over 10 years, assuming offsite plume.
  - 1 If there was a problem, Lab would address it.
  - 1 Short-term exposures not hazardous levels violate long-term exposure standards.
  - 1 Grasses growing are irrigated by ground water—cows may eat.
  - 1 Doesn't dissipate, stays in water.
  - 13 Regulators/LLNL staff (not asked question).
  - 66 Total
- C. The kinds of actions that DOE/LLNL have taken to deal with the problem/the current stage of the site in the Superfund process
- Actions:
- 23 Monitoring/exploratory wells.
  - 6 Testing UV/hydrogen peroxide with activated carbon.
  - 8 Lab will pump and treat water and then return it to the ground.
  - 6 Testing different methods.
  - 4 Investigating vacuum-induced venting for gas spill area.
  - 3 Wells closed.
  - 3 Characterized plume and its movement.
  - 3 Aggressively characterized problem, determined sources, identified cleanup alternatives.
  - 3 Know what is being done, but tremendous waste of time and money.
  - 3 Satisfied that Lab is taking action, so doesn't follow closely.
  - 3 Have a general idea of what Lab is doing.
  - 1 "Bugs" used on gas spill.

- 1 Putting up barriers to stop plume from moving.
- 1 Lab will wash soil and replace with clean—very expensive.
- 1 Lab is at a pilot stage in the treatment—have 2 plants in operation.
- 1 Atomizing the water.
- 1 Provided bottled water.
- 1 Lab is in the process of cleaning it up.
- 1 Lab is trying to get information to community - not trying to withhold.
- 1 County/State/Federal agencies working with LLNL.
- 2 Don't know.
- 13 Regulators/LLNL staff (not asked question).
- 89 Total
- Stage:
- 36 No response.
- 3 Completed FS.
- 1 RAP Completed and approved.
- 3 Current stage is RD1.
- 5 Don't know.
- 3 Not sure of technical name.
- 1 Completed RI, but still studying sources.
- 1 Beginning Remedial Action.
- 1 ROD decided and moving ahead.
- 1 PRAP public meeting last year.
- 55 Total

## Concerns About the Site/Attitude Toward Cleanup

4. Do you have any concerns about the site? If so, what are they? (Comments categorized into seven areas.)

### A. Cleanup Methods/Approach to Cleanup (23 comments)

CWG—Community Members:

- 3 Want Lab to publish contaminant cleanup milestones.
- 3 Wanted more public input into cleanup schedules. Want the cleanup time frame to be shorter.
- 2 Concerned about what they perceive to be DOE/LLNL's "disinterest" in discussing the connections between the Superfund cleanup activities at the LLNL Livermore Site and present LLNL operations that may be contributing to future problems (e.g., releases and spills).
- 2 Wish that Lab had considered other, faster cleanup schedules (e.g., cleanup in 10-20 years).
- 1 Wonders what will happen to the contaminants removed. How will they be disposed of?
- 1 Lab seems to be doing a good job overall, but the public has to trust that LLNL is doing a proper job of monitoring.

- 1 Interviewee found what he perceived to be an abnormality with a computerized monitoring station on a Lab tour in which he participated. For this reason, he's concerned that LLNL won't take monitoring data seriously enough.
- 1 The group's Technical Advisors are concerned about LLNL's lack of attention to tritium.
- 1 Wonders about the effect of the drought and other unknowns on Project contamination problems.
- 1 Believes that the radioactive waste issue must be continuously monitored by LLNL, and discussed at community meetings.

CWG—Regulators/City

- 1 Would like to see in-the-field emergency response training for all DOE cleanup projects.
- 1 Concerned that the cleanup job be technically sound.
- 1 Concerned about the past history of LLNL with regard to radionuclides. The community is concerned about tritium and plutonium.
- 1 Cleaning up to MCLs may be okay today, but in the future, with scientific improvements in toxicology, the MCLs may be lowered.

Former CWG Members

- 1 Wants all contamination sources to be treated.
- 1 Rate of cleanup seems too slow and piecemeal.

Public interest groups

- 1 DOE/LLNL compartmentalize waste management, environmental restoration, and other programs. The Project doesn't address current and future problems. As long as Lab operations continue, the same kinds of contaminant problems are likely to occur (probably less now, but there's still a chance). Routine emissions, accidents, and spills exist programmatically, across the board.

B. No Concerns/Satisfied with how LLNL is Proceeding (16 comments)

CWG—Community Members

- 2 No concerns.

Past Attendees of CWG Meetings

- 1 Only concerned that LLNL cleans up the contamination, which it seems they are doing.

Former CWG Members

- 1 Was originally worried about contaminants, but now thinks that the public health hazard is low, so not concerned.

LLNL Staff and Management

- 2 No concerns.

Randomly Selected Employees

- 2 No. They trust LLNL to solve the problem.

Business Representatives

- 3 No concerns. LLNL invested lots of time and money. Lab and Feds have done a great job, both technically, and from the PR point of view, as well.

## Mailing List/LLNL Neighbors

- 1 No health concerns. Just concerned now that Lab's getting bad PR with regard to this situation.

## Elected Officials

- 2 Trust Lab and what it says.

## City and County Representatives

- 1 Has confidence in Lab's cleanup approach. Thinks life is risky to begin with and that there are truly major problems that society should be addressing. The LLNL Livermore Site cleanup is NOT a major problem.
- 1 LLNL's studies have pretty well addressed most of the concerns. LLNL seems to be progressing and moving forward. However, it would've been nice if the investigations and cleanup work had been on a parallel track, so that the cleanup would be further along.

## C. Community Relations and Internal Communications (18 comments)

## CWG—Community Members

- 1 Appreciated that LLNL listened to community concerns about air stripping techniques.
- 1 Wish that LLNL had organized a presentation on innovative remedial technologies for the CWG, instead of a CWG member doing the presentation.
- 1 Overall, DOE/LLNL approach the cleanup with old "cold war" attitudes intact: "what they don't know won't hurt us." This affects the relationship between the technical staff and the community.
- 1 LLNL is still too closed/secretive.

## CWG - Regulators/City Officials

- 3 The different LLNL departments that deal with environmental issues need to be in better communication. Overall, LLNL needs to improve its internal communications.
- 1 LLNL needs to always pay attention to people's concerns. Not always happy with LLNL's answers to the community.
- 1 The role of the CWG needs to be defined. Also, some people think that individual group members need to make a bigger effort (i.e., do their "homework" between meetings)—not just attend meetings and listen. Wonder how the group can be more effective?
- 1 LLNL should continue to sponsor CWG meetings in the future. There should be an emphasis on forums for continuous public involvement throughout the cleanup process—not just public comment periods on isolated documents.

## Former CWG Members

- 1 All involved people are well-meaning and share interviewee's goals.
- 1 Wants public to be made aware of the hazards.

## Randomly Selected Lab Employees

- 1 Not involved because he doesn't think he can make a difference, given the Superfund bureaucracy.

## Business Representatives

- 1 Concerned about the public's perception of the tritium issue, and its effect on wine sales. Too much publicity alarms people needlessly.

- 1 Interviewee sells real estate. Must disclose cleanup information to prospective buyers, who become concerned.

#### Public Interest Groups

- 1 When one Lab employee said, in one public forum, that "We don't anticipate any accidents," this reflected LLNL's arrogance. Interviewee believes it diminishes LLNL's credibility.

#### Mailing List/LLNL Neighbors

- 1 Interviewee sells real estate. Must disclose contamination information to clients, who become concerned. A lot of people buying property may not know about the contamination. The contamination problems shouldn't be covered up.

#### City and County Representatives

- 1 Believe that community perception of LLNL is more positive than negative.

### D. Health and Environmental Issues/Contaminant Risks (15 comments)

#### CWG—Community Members

- 2 The fact that this is a Superfund site indicates serious problems. Have a general concern about health risks.
- 1 Concerned that new tritium release locations have been discovered since the RI was completed.
- 1 Appreciated that LLNL listened to community concerns about air stripping techniques.
- 1 Lab deals with dangerous materials. Despite good intentions, accidents can happen.

#### CWG—Regulators/City Official

- 1 A good portion of the regional aquifer is contaminated. With increased water demand and growth, water shortages may be possible in future because the ground water basin is not available for usage. This increases the burden to other water sources (e.g., Sacramento River, wetlands).

#### Former CWG Members

- 1 There may be undiscovered problems.

#### Randomly Selected Lab Employees

- 1 Concerned about health impacts, but doesn't know enough about the problem to be specific.

#### Public interest groups

- 2 Generally concerned about contaminants in the ground water basin. Wonder about water contamination—is anyone being exposed?
- 1 Regarding tritium, DOE/LLNL/UC downplay its presence and health risk. Lab misleads public by denying any responsibility for the contamination. They blame the problems on Naval operations, but Navy didn't use tritium. This denial doesn't help credibility of LLNL. LLNL finally admitted some Lab responsibility for contamination for the first time recently.
- 1 Believe that not all contaminants have been identified, since Lab testing reflects that there may be other undiscovered contaminated areas.

## Mailing List/LLNL Neighbors

- 1 Believes that LLNL has contaminated the ground water, and no one knows how to control it. Wants to know if their ground water strata will be affected. Believes that, if a million gallons of water are pumped daily, their water supply might dry up. Also, contaminants might enter their water supply. Interviewee may want independent tests on her water as a precaution. Wonders if Federal cleanup levels are safe.

## Neighbors Whose Wells Are Sampled

- 1 Wonders whether water beneath his property really did turn out to be contaminated.

## Elected Officials

- 1 Lab should clean up ground water contamination since it has the resources and technology.

## E. Government and Public Are Overreacting/Too Much Money Allocated to Cleanup Project (13 comments)

## Former CWG Members

- 1 Far too much money is being spent on the cleanup. It doesn't deserve this level of attention and activity.

## Past Attendees of CWG Meetings

- 1 Seems like a lot of nonproductive work is going on, which is typical of many environmental problems. Too much money is being spent.

## LLNL Staff and Management

- 1 Irritated at amount of money being spent. The government is overreacting to the situation.
- 1 Newspapers blow the problem out of proportion.
- 1 The media and the public have no sense of relative risks. Interviewee wouldn't work on the LLNL Livermore Site if there was a problem.

## Randomly Selected Lab Employees

- 2 Don't like that LLNL is spending money unnecessarily on this cleanup when there's no danger. The money could be better spent elsewhere.

## Business Representatives

- 3 Don't like that LLNL is spending so much time and money on the site when it doesn't pose a real problem. Superfund is a flawed program.
- 1 There's too much red tape that makes the cleanup slow.
- 1 There's too much red tape.

## Neighbors Whose Wells Are Sampled

- 1 LLNL is spending a lot of money, given that the contamination is not going to harm anyone. Hopes the R&D they do will be of help elsewhere so it's worth it.

## Elected Officials

- 1 Thinks problem has been overrated due to those who oppose LLNL mission.

## F. Long-Term Funding/Administration of Project (8 comments)

## CWG—Community Members

- 3 Concerned that less money will be available in future (in government budgets) as more contaminated sites are found and cleaned up. Also concerned that cleanup funding depends on decisions made in Washington, DC.
- 1 Wonder what happens if DOE “pulls out of” LLNL—what is DOE’s long-term commitment to community with regard to the cleanup?

## CWG—Regulators/City Official

- 2 Given the potential for changes in either LLNL’s mission or administration over the next 50 years, concerned whether the cleanup will continue to occur on schedule. To help compensate for this potential problem, LLNL needs to give the regulators lots of information so they can help reproduce investigation and cleanup-related information, if necessary.
- 1 Have some concern regarding future cleanup funding.

## Business Representatives

- 1 Have some concern regarding future cleanup funding.

## G. Concerns about Other Lab Activities (3 comments)

## Random Lab Employees

- 1 No concerns about existing contamination, but concerned about ongoing operations (e.g., the recent plutonium spill) and are there other things they either don’t know about or hear about late.

## Public interest groups

- 1 Concerned about radioactive leakage from other LLNL accidents.

## Mailing List/Lab Neighbors

- 1 Mainly concerned about Lab’s other activities—not the Superfund cleanup. Understands that no one knew what they were doing when they dumped contaminants around the time of W.W.II.

Two newly elected officials were unfamiliar with the site and were not ready to express concerns.

5. Do you believe that the Superfund site problems pose a current public health threat?

- 30 No.
- 8 Yes.
- 5 Don’t know enough to say.
- 13 Regulators/LLNL (not asked question).
- 56 Total

## 6. Do you believe that the contamination problems being addressed under DOE/LLNL’s Superfund program for the LLNL Livermore Site pose a potential health risk? Why or why not?

- 12 Serious risk.
- 7 Moderate risk.
- 15 Small risk.

- 10 No risk.
- 1 Don't know enough to say.
- 13 Regulators/LLNL (not asked question).
- 58 Total

Twenty-four respondents provided the following explanations:

Serious:

- 5 Serious if not cleaned up; could enter water supply.
- 3 TCE and many contaminants pose a health risk at low levels/who knows what risk might be in future—we didn't know in past what would happen today.
- 2 Degraded an important natural resource/water crisis in California.

Moderate:

- 4 Tritium risk is moderate to serious.
- 2 Believes GW should be protected and prevent movement of plume, but continued pumping could contain plume without trying to clean it up to such a high degree.
- 1 Moderate risk consistent with need to spend \$100 million to clean it up.
- 1 Could be serious if ignored; moderate risk if taken care of.
- 1 Moderate risk if not taken care of.
- 1 VOC vapors in vicinity of subdivisions—possible pathway to residents. Large extent of GW contamination offsite.
- 1 Not convinced that the limits of contamination have been completely characterized.

Small:

- 2 Small risk if cleaned up.
- 1 VOC risk is small.
- 1 Contaminants don't seem to be moving towards the community.
- 1 Small if not taken care of and other contaminants found.
- 1 Public overreacts to chemical health risks.

7. Has your opinion about the Site or DOE/LLNL's approach to addressing site problems changed over the years?

- 22 Yes, I think that they're doing a better job than I used to think.
- 0 Yes, I think that they're doing a worse job than I used to think.
- 17 No. My opinion has remained unchanged.
- 3 Not sure.
- 3 No response.
- 13 Regulators/LLNL (not asked question).

58 Total

Thirty-seven respondents provided the following explanations:

General Comments:

- 4 Community has changed and Lab is responding to fact that it needs to be a good neighbor.
- 4 Thinks Lab is still too closed (secretive) and defensive.
- 2 Interviewee has become more informed, learned about complexity of cleanup and community relations.

- 2 Thinks that they're doing the best job that they can.
- 2 Lab trying to be more open with the public.
- 1 Lab's activities have been consistent.
- 1 As knowledge and awareness of problem by Lab increases, they will do a better job.
- 1 LLNL is a money hungry, government funded bureaucracy—over extravagance.

Communication Activities:

- 3 One Lab employee on Project is strong people-person—need more like him.
- 3 Easier to get information.
- 2 Lab talked down to CWG in beginning: baffled group with technical figures, scripted meetings, having CWG discussions at end of agenda.
- 2 CWG process shows that Lab is concerned.
- 2 LLNL's information system and approach to public has made cleanup more understandable to public.
- 1 Community relations activities end up with one-sided constituency who wants to interfere with lab activities.
- 1 Communications approach bad. Lab has negative image—there are boycotts against local wines because of Lab.
- 1 Lab wouldn't have given this effort without pressure from the community.
- 1 Went on tour of Lab last year and was very impressed.
- 1 The effort to solve these problems involves greater public awareness, but there doesn't seem to be any greater commitment from the Lab.

Technical Activities:

- 1 Technical work is improving, but overall approach needs to be less defensive and include public and CWG predecisionally.
- 1 Lab has a comprehensive plan in place and is moving forward.
- 1 Doing better technically, but not sure if Lab has funds to do what it needs to do.
- 1 They know more due to well drilling and seismic studies, etc.

Regulatory Requirements:

- 3 Doing better job but maybe not by own choice. DOE and regulators have influenced outcomes.
  - 2 More strict observance of environmental concerns/Lab more conscientious.
  - 1 Feels EPA forced Superfund cleanup on Lab, but now turning LLNL into a model site—only DOE site with a ROD. Technical management and staff are excellent.
  - 1 Superfund cleanup has been a bureaucratic nightmare.
  - 1 Following CERCLA process for better or worse.
8. Please say what you think about DOE/LLNL's approach to the Superfund cleanup at the LLNL Livermore Site:
- 4 They're not doing enough.
  - 22 They're taking appropriate and responsible actions.
  - 10 They're doing too much/spending too much money.
  - 6 Don't know enough to say.

- 3 Other.
- 13 Regulators/LLNL (not asked question).
- 58 Total

9. How much time do you understand that it will take to clean up the contaminants at the LLNL Livermore Site?

- 1 1-2 years.
- 3 3-10 years.
- 12 10-50 years.
- 18 More than 50 years.
- 11 Don't know enough to say.
- 13 Regulators/LLNL (not asked question).
- 58 Total

Do you understand why?

- 27 Yes.
- 10 No.
- 8 No response.
- 13 Regulators/LLNL.
- 58 Total

10. What do you think about the time that the cleanup will take at the LLNL Livermore Site?

- 18 It's about right.
- 8 Too long.
- 18 Don't know enough to say.
- 1 Depends on other factors.
- 13 Regulators/LLNL (not asked question).
- 58 Total

TYPES AND EFFECTIVENESS OF COMMUNICATION

11. How have you received your information about the LLNL Livermore Site Superfund activities in the past? (Please mark one or more of the activities below.) How would you like to receive it in the future?

Past	Future	
35	37	<i>Ground Water Update</i>
27	23	LLNL meetings (CWG and other)
27	26	LLNL tours
16	12	Meetings/information sponsored and distributed by other agencies or public interest groups
9	7	Other LLNL mailings (please specify):
10	24	U.S. DOE mailings
16	12	<i>Newsline</i> (LLNL employee newspaper)

39	32	Media
6	16	Information Repositories (Livermore Library and LLNL Visitors Center)
18	14	Neighbors
19	19	Phone calls/briefings/contact from LLNL or DOE employees
9	13	Other (please specify):
	1	Berkeley Grad Students
	1	Professional Contacts
	1	Zone 7 contact
	2	Exchange information with friends, family, church acquaintances
	1	Phone calls with Lab's Environmental CR contact
	1	Science Education Center
	1	Technical advisors to other Superfund sites
	1	Public interest groups
	1	Citizens Clearinghouse on hazardous waste
	1	Interaction with EPA on TAG
	2	Tri-Valley CAREs materials
	2	CWG materials
	3	Lab presentations to groups
	1	Weekly meetings and reports

12.-13. Please say how well these activities have served your needs. How can future public participation activities regarding the LLNL Livermore Site cleanup be improved (including group forums like the CWG)?

#### COMMUNITY WORK GROUP

Of all the communication activities, the majority of the comments focused on the CWG. Comments about the CWG came from CWG members, former CWG members, LLNL staff, elected officials, and past attendees of CWG meetings. Forty-seven comments were received on this activity. Comments included:

##### Process and format-related comments:

- Include a Federal official as a CWG representative to help ensure future funding of cleanup.
- Doesn't like it when people ask the same questions over and over at CWG meetings.
- CWG meetings are better—more two-way communication, fewer presentations. LLNL is more responsive.
- Announce CWG meetings in newspaper.
- CWG shouldn't strive for consensus as a group. Consensus is frustrating. The meetings should be for idea exchange only. LLNL will make final decisions.
- Want more "open-for-discussion" meetings, fewer presentations by Laboratory.
- Pass out minutes from previous meeting at beginning of next meeting.
- CWG should be more broad-based; not so polarized.
- Use more Q&A periods at CWG meetings. Formal presentations are informative, but community is not comfortable asking questions.

- Roundtable discussion at the November CWG meeting was more effective than others have been in the past.
- The facilitation of the last few meetings has been an improvement. In the past, one particular member of the group used to take over. Likes that the CWG had a statement and that the group members were more involved.
- Meetings are good, but very expensive.
- Want the representatives to be in regular attendance.
- Expand scope of CWG to include discussions of ongoing operations.
- How about having an additional group sponsor the CWG to get LLNL messages to a wider audience?
- How about doing one-on-one lunch meetings with CWG members?
- Wish that CWG members did their “homework.”
- Get non-Laboratory related scientists and teachers onto the CWG.
- Do more informal sessions.
- Likes that LLNL is becoming more of a resource, rather than as a “driver” of the CWG.
- Need to get closure on issues at CWG meetings.
- Meetings should be smaller.
- Get the CWG to stay on topic.
- DOE/LLNL and agencies seem to have view that CWG represents concerns of all members—not just one person, as is commonly the case.
- Meetings should be less confrontational. Need more cooperation from Lab and sharing of information. Adversarial relationship makes people less likely to share.

Evaluative comments included:

- A CWG mentor group from another Superfund site would have been very helpful in the beginning stages of the CWG meetings.
- Laboratory representatives are sometimes not patient in answering CWG questions.
- Interviewee has asked numerous times about the basis for LLNL’s estimate of a 70-ft plume migration number, but has received no response. LLNL is antagonistic about other suggestions made by interviewee.
- Atmosphere at meetings is confrontational—need more cooperation and sharing of information.
- Frustrated that LLNL isn’t more responsive, and there’s low public interest in the cleanup.
- CWG has an effect, but questions whether it’s worth the time.
- The CWG is effective.
- DOE/LLNL needs to build more trust with community—share more background on WHY a decision is being made (time studied, investigations). If CWG felt that they were receiving complete responses instead of “no” then people would be more understanding. Community feels that DOE/LLNL is trying to get away with something. Scientists need to explain how and why a decision is made.
- The CWG is a “ludicrous forum.”
- Laboratory needs to be more open, less defensive.
- The meetings have helped the regulatory agencies realize that there’s an informed and concerned community and they have resources to make informed decisions about cleanup. Interviewee looks to their comments to make decisions about regulating the site.
- LLNL should hire objective engineers to assess its Project (Technical Advisor).
- Suggest doing educational seminars for CWG members using outside experts—to show intricacies of the project and education on relative risks, and R&D.

- CWG members seem dedicated.
- The meetings are OK, but interviewee gets upset at some of the “bull” that is said by group members. The interviewee sometimes leaves before the meetings end out of disgust.

#### LLNL TOURS

There were 21 comments about LLNL tours, most of which were in strong support of this activity. Five people commented that tours are a good way to dispel the “mysteries” and “scariness” of Lab technical processes and activities. Several Laboratory employees wondered whether, given the relatively low attendance on the tours, they were worth the effort. Suggestions for improvement included:

- Tours can be very informative, but should be less PR oriented and discuss real issues.
- Timing is important.
- Improve publicity, especially for the next Environmental Day tour.
- Broaden Family Day and other tours to allow community members to go on tours -- teacher would like to take students on Laboratory tour. Expand beyond VIPs to broader community including teachers.
- Have tours of environmental facilities.

#### GROUND WATER UPDATE

There were 21 comments about the *Ground Water Update*. The remarks were generally favorable from all groups of interviewees. Descriptions used were “great,” “good/excellent,” and “helpful.” One person said: Can never seem to get around to actually reading it. Comments for improvement included:

- Include mention of the documents signed, site sources, and highlights or minutes from CWG meetings.
- Need to summarize the RAIP, RDs, and next series of steps.
- Keep it simple and understandable. Make it less technical for some people—explain technical words.
- For most people, it is very difficult and confusing to separate all the different review processes (two Superfunds, sitewide EIS, programmatic EIS) at LLNL, and agencies, CR programs, etc. All newsletters should start off with a description (verbally or graphically) of these relationships. Laboratory employees involved in some of these activities aren’t even aware of other similar activities going on at LLNL.
- It’s PR oriented. Include an article from someone outside LLNL (e.g., CWG group member, TAG Advisor, regulatory agency).
- Send newsletter to residents in the area and to interviewee who can take it for discussion at League of Women Voters meetings.

#### MEETINGS/BRIEFINGS

There were 18 comments about meetings and briefings (excluding the CWG meetings)—interviewees from almost all groups commented on this activity. Comments included:

- Public meetings/hearings are very informative. How about having them once/year?.
- Think it would be useful to hold larger meetings (similar to PRAP public meeting) from time to time. The meetings should be advertised in the newspaper.
- Might attend an overview type meeting in the future.

- Doesn't go to meetings because doesn't think it's a problem. Would go only to see community's reaction to Laboratory.
- Public forums seem worthwhile.
- LLNL did a good explanation of tritium at the wine growers' luncheon.
- Acknowledge the relationship between the programmatic work at LLNL and the work that the environmental restoration group is doing (e.g., cleaning up after their accidents, etc.). Bring in some of the program people to the CWG and other meetings occasionally. When an announcement goes out about a community meeting, recognize that LLNL's mission is controversial. Don't just say that at the meetings that "we're committed to protecting the environment," and that non-Superfund related questions can't be addressed.
- LLNL's meeting with the Sierra Club in 1990 was useful and informative.
- Doesn't need to go to more meetings.
- Rotary presentations have been great. PTA presentations might be good, too.
- Would be nice to get more people to LLNL's meetings—wishes people were more knowledgeable about science.
- Phoning helps—do meeting notification by mail. People might not see meeting notice in paper.

#### MEDIA

There were 13 comments about how well the media serves as a source of information about the LLNL Livermore Site cleanup activities.

Representative comments included:

- Media OK but inconsistent depending on reporter, other news that day.
- Media good way to know what media/community think of LLNL, not good for truth.
- Media is sporadic and a partial source of info.
- LLNL should send out more news releases to local papers.

#### NEWSLINE

There were 12 comments about *Newsline*, half of which came from LLNL employees. Four CWG members asked whether they could be added to the newspaper's distribution list. Comments from interviewees included:

- It's pretty good.
- It should provide more environmental coverage.
- It's not as widely read as LLNL would like/old news.
- It's helpful to skim *Newsline*.

#### INFORMATION REPOSITORIES

Only four comments were received regarding the Information Repositories:

- It's sometimes difficult to find documents in the repository when things are cited. Also, some things that used to be included aren't there (referring to another LLNL environmental Project—not the LLNL Livermore Site Cleanup Project).
- Create a repository at Las Positas.
- Think that they're not used much because of other access that people have to the information.
- Information repositories are fine.

PHONE CALLS/BRIEFINGS/CONTACT FROM LLNL OR DOE (Also see MEETINGS)

There were three comments on this method of information communication, but no one suggested any improvements needed.

#### U.S. DOE MAILINGS

Of those people who had seen the DOE mailings, one person commented on the newsletter (“good, understandable information”), and several others asked to be added to the mailing list.

#### OTHER INFORMATION SOURCES

The nine comments received on other information sources were:

- Add lay person’s introduction/abstract to the technical documents.
- LLNL’s Science Education Center is excellent.
- Well sampling results should be made available—knows property is being sampled, but hasn’t gotten any results in a long time.
- In general, LLNL does very well in communications with Zone 7. Lag time on completion of monthly reports is a minor problem, but is told that situation will improve.
- Sometimes people at school where interviewee works bring information to interviewee.
- Tri-Valley CAREs (TVC) meetings were very biased. Think their information is not scientifically based.
- TVC information is too biased. Want more information from the “horse’s mouth.”
- Publicize the public places at LLNL, including the Visitors Center.
- Establish a public access electronic bulletin board for updates and dialogue. General information on the Lab could also be included.

#### GENERAL COMMENTS

There were almost 50 comments of a general nature, the majority of which expressed support for the LLNL Livermore Site community relations program. Support for the program was consistent across interview groups.

Comments on LLNL Activities:

- All of the activities have been good, overall, but the amount of information is overwhelming.
- Activities inform about health risks moderately well.
- Activities have served needs well. Level of information received has been adequate. Overall, things are very good.
- LLNL should not minimize or trivialize spills and other problems.
- Not reaching average citizens.
- Good to have a variety of activities.
- Not that interested—no one talks about it, so not concerned enough to get information. More interested in earthquakes.
- Interested in getting more information on Environmental R&D.
- Keep elected officials/media informed.
- It’s important to get the word out so that there’s a base of people who understand what’s going on regarding the Project.
- To reach employees, put information on the “Internet” system.

- LLNL needs to have a more aggressive speaker outreach program.
- Better outreach to community-based organizations, e.g., homeowner's associations.

Comments on Attitudes/Approach to Community (including employees):

- LLNL needs to be more open to community/less secrecy. Frustrating that information must be cleared through several layers of DOE/LLNL bureaucracy.
- Activities good, but dominated by PR and defensiveness. PR approach is serious mistake in light of intelligent community.
- DOE/LLNL took awhile to work well with community—last year was first effective year.
- LLNL is more open with making information available to the public. Public can get it if they want it.
- Contact between the Laboratory and the City of Livermore has become more infrequent since new team started, but it's not a problem.
- Laboratory is becoming a little more inflexible on relatively minor issues. Providing a time frame for the cleanup with disclaimers would go a long way toward placating some of the CWG members.
- The relationship between LLNL and the community is now more polarized.
- Laboratory management is hard to reach.
- People who express concern aren't going to change their minds when they get more information—the activists will always overreact.
- The more LLNL exposes the problem, the more people will pass judgment. Some activists will never be satisfied.
- LLNL is trying to keep public informed. Interviewee feels maybe could learn more if interviewee wanted to.
- Laboratory is pretty good about sharing new information with City prior to release to public.
- Need good informal communication with employees; they're the ambassadors.

14. a. Are you on LLNL's mailing list?

38 Yes.  
 13 No.  
7 Not sure.  
 58 Total

b. Do you want to be added?/Stay on?

52 Yes.  
6 No.  
 58 Total

CONTACT WITH SITE OFFICIALS

15. Have you made any contacts (in person or over-the-telephone) with DOE/LLNL Project staff/regulatory agencies regarding the site? If yes, do you feel that they have been responsive to your needs? Please explain.

26 Yes (made contact).  
 22 No (haven't made contact).  
 3 At CWG meetings only.  
7 LLNL (not applicable).

58 Total

Note: All who had made contact considered staff to be responsive.

#### REGARDING THE COMMUNITY WORK GROUP (CWG)

16. Have you ever attended a CWG meeting? If so, in what capacity (e.g., as a member, or as an observer)? If you haven't gone to a meeting, why not?

30 Yes.

28 No.

58 Total

Of those who said no, reasons for not attending included:

- Didn't know about meetings.
- LLNL not doing anything wrong/things are fine/doesn't need to get more involved.
- Not aware of CWG.
- Have other access to the information.
- Scheduling/time constraints.

17. Have the CWG meetings been a useful forum for your needs? If yes, please say why. If no, why not?

23 Yes.

4 No.

28 Don't know enough to say.

3 Sometimes.

58 Total

Comments included:

- Useful forum, but need more community members involved.
- Would improve if members felt like what they said would have impact.
- Provide two-way communication/ Voice concerns/Get questions answered.
- Took a long time for group to be effective—lack of leadership. The TVC members made group one-sided and resulted in disruption and inefficiency.
- CWG should have met with community members only on occasion—sometimes hard to ask questions in front of whole group.
- Some people don't trust LLNL and will condemn it no matter what.
- Feels group has influenced activities at Laboratory.
- Owns property next door—so the meetings keep interviewee informed.
- Interviewees feel like they've made a contribution to cleanup efforts.
- The current Project leader has improved the meetings—treats people with respect and intelligence.
- Lab has done excellent job of presenting technical materials to CWG, but LLNL is providing information to very small part of community. TVC only wants to interfere with LLNL activities. Need more members—City Engineering, Chamber of Commerce, hospital, water dept., sanitation, etc. No other city group is involved with CWG. Interviewee felt like he was only non-TVC person in group. CWG useless for informing community.

- Hard for CWG to make an evaluation, some members don't have technical expertise—need information from objective technical sources.
  - Helps community understand what LLNL is doing.
  - Meetings have gotten better—real dialogue established—LLNL more open to discussion, less “arrogant”.
  - CWG taking more of a leadership role.
  - Useful to see nature of interactions with the public.
  - Currently, the group is overemphasizing what's not being done, and not giving credit for Project staff's good work.
  - CWG meetings show how interaction with public is working. Early in Project there seemed to be some ragged edges (in technical approach). That's improved, as evidenced by what interviewee reads in the media regarding the CWG meetings.
  - Good way of finding out who's doing what and to place faces with names.
  - CWG is not forum, but advisory group, predecisionally, on cleanup.
  - Generally yes, but don't like Laboratory's defensive attitude; must work for everyone's best interest (not adversarial).
  - It's a “ludicrous” forum.
  - CWG is useless unless future monies are committed—must keep public involved.
  - Yes for Lab, no for CWG members. Feels that Lab presents a best case scenario, also, not a true exchange.
  - CWG has too many members with other agendas.
  - In the past, confusion of roles with CWG: Lab wanted to explain problems and community cleanup. CWG wanted input on cleanup alternative chosen. Community felt LLNL was only lecturing and wanted a more proactive role.
18. Has the existence of the CWG had an effect on your attitude regarding the LLNL Livermore Site Cleanup Project? (e.g., increased/decreased your concerns about how the cleanup is progressing; reassured/not reassured you that DOE/LLNL are doing something constructive about the contamination problems). Please explain.
- 17 Yes, it has had an effect.
- 11 No, it hasn't had an effect.
- 18 Didn't know there was a CWG.
- 1 Not sure.
- 6 No response.
- 5 LLNL Staff (not applicable).
- 58 Total

Some representative comments included:

- Reassured on some issues/raised concerns on others.
- This question reflects dominance of PR is LLNL decision-making.
- Purpose of CWG is to educate itself and participate in the decision-making process regarding cleanup. This is happening.
- Initially felt that LLNL wanted to use CWG as PR tool.
- Thought Laboratory was doing a good job before and still does.
- Feels that Laboratory isn't out to get community, but there is still room for groups to come together.
- Has found group to be informative, particularly recently.

- Having participated increased her fears about ground water contamination and cleanup. Made her more aware of exposure pathways. Wondered why Lab kept the problem secret (e.g., Rhonewood Subdivision people were not notified of the contamination immediately).
- LLNL presentations—very well done.
- The group made community members feel good in beginning stages--could provide input during middle stages of Superfund. Later, community realized that their input was limited and felt frustrated.
- Communication is very important.
- Very impressed with Felicia Ziomek's (CWG member's) presentation on remedial technologies.
- Existence of group decreased interviewee's concerns—feels LLNL is working on things.
- Views group as a way to appease TVC.
- Reassuring that they're monitoring LLNL. People interviewee interacts with know about the CWG and have a positive feeling about the group.

19. Have you talked about the LLNL Livermore Site Superfund program with any of the CWG members? What kind of information have you received from them? How frequently?

13 Yes.

45 No.

58 Total

Comments included:

- Talks with other CWG members at meetings and when working on group statements.
- One to two times.
- Gets information from two of the CWG members when he needs it.
- Tri-Valley CAREs Newsletter.

20.a. Do you believe that DOE/LLNL should continue to sponsor CWG meetings? Please explain.

34 Yes.

0 No.

24 Don't know enough to say/not sure.

58 Total

Comments included:

- Citizens are concerned about hazardous waste and want to continue meeting post-ROD.
- Directly affected public should have input into decisions and issues, including timelines and changes in technology.
- Surprised that EPA doesn't mandate community acceptance of cleanup time and post-ROD community relations involvement.
- DOE/LLNL must learn to operate in a more open manner overall.
- CWG could become a model for the agencies (DOE/LLNL).
- CWG provides fresh viewpoint to Lab. DOE/LLNL needs independent outside analysis in order to better define cleanup issues and insure the most complete cleanup possible. (Watchdog—keeps Laboratory honest).
- Lab just about has to continue the CWG due to present attitude of members (e.g., they're pressing for commitments).

- Livermore is full of activists—it's to Lab's benefit to work with group since people won't go away. Community is better represented by two groups.
  - Too much time has been invested to stop the meetings.
  - Allow people on CWG to make mistakes—don't be overly critical.
  - LLNL should give group members a chance to make their statements without interfering with press first.
  - Yes, but they should be billed as Lab information sessions—not an objective look at data.
  - Yes, if more community interests are represented.
  - Some community members had concerns about other activities at Laboratory that ground water staff couldn't answer.
  - Keeps the process open/reduces perception that LLNL is hiding behind “veil of secrecy.”
  - Yes, but the scope of the meetings should be expanded to include discussions of ongoing operations and broader Lab issues.
  - Yes, but doesn't understand/is frustrated about why certain issues—some of little relevance to the Project—keep coming up once they are answered.
  - Need to be careful not to overload public with information/involvement (tours, etc).
  - Best way to get information out (but if CWG membership has dropped, maybe newsletter/media updates are better).
  - Would be alarmed if LLNL stopped the meetings.
  - Should continue interactions with public, but CWG might not be best forum—too large to discuss technical issues—need more give and take (e.g., sit around a table with maps, etc.)
  - With 50 years of cleanup, Lab needs to keep communicating.
  - Only have meetings if there's community interest.
  - Depends on need—if issues are resolved, don't need to have one.
  - Good that LLNL is being more open and taking CWG into the real world of problems and uncertainty.
  - Not sure meetings are worth the expense.
- b. If yes, can you recommend anyone who might be interested in serving on a CWG or similar public interest group forum?
- Recruit from Las Positas College—faculty/students 18-65, local, good cross section, send out general invite.
  - Need local people.
  - Need broader representation—reflect Livermore demographics.
  - Community leaders/politicians.
  - Right now, the CWG is off-kilter—it's overemphasizing what's not being done. They don't recognize LLNL is doing more to deal with cleanup issues than 99% of other places.
  - Housewives.
  - Blue collar workers.
  - Chamber of Commerce.
  - Business park people (Triad Corp.), Hacienda Business Park.
  - Wine growers/wine people.
  - City of Livermore attorney.
  - Technically oriented people (Livermore Public Works/Public Health).

- A few specific names of individuals were received.
  - People with a vested interest (but not a negative vested interest).
  - Zone 7.
  - Someone from the press.
  - Local realty board member.
  - Chamber of Commerce rep.
  - Homebuilders near Lab.
  - Interviewee is interested in attending and possibly joining CWG.
  - Interviewee might be interested in CWG if there's enough time in schedule.
  - Someone from City of Livermore Environmental & Energy Committee.
  - Science teachers—would help recruit, if that would be helpful.
  - Maybe someone from the Alameda County Public Health Dept.
  - Expand to include regional representatives.
- c. Do you have any further suggestions for assuring that the public is informed and involved in future LLNL Livermore Site Superfund activities conducted by DOE/LLNL?

Suggestions included:

- More frequent public information meetings—would involve other people in community (besides TVC)—will improve relations and represent whole community.
- KKIQ and Channel 30 (public access).
- Big poster of upcoming activities at Visitors Center.
- Getting together with the public in smaller groups.
- Provide more opportunities for the public to come onsite/meet with LLNL staff.
- Keep contact through newsletters/media updates.

FOR THOSE WHO ARE CURRENT CWG MEMBERS:

21. Have you talked about the LLNL Livermore Site Superfund program with anyone besides DOE/LLNL and the other CWG members? If yes, what kind of information have you passed along/How frequently/To whom? If no, why not?

16 Yes.

0 No.

42 Not applicable.

58 Total

Comments about whom they've talked to include:

- People at work.
- In class to students.
- TVC meetings.
- Neighbors.
- Friends.
- Neighborhood group—reports to board every time he goes to meetings.

- Meeting with people in Arizona concerned with ground water.
- City of Livermore Director of Public Works, City Manager, Planning Director, Council members.
- Supervisor, work colleagues.
- Family and friends.
- Has posted activity summary/decisions on an environmental computer network and has written a couple of articles for a local newspaper.

Comments about what kind of information they've passed along include:

- Projected status, issues raised at work group sessions.
- Presence of contaminants and what they are.
- Technologies used and proposed.
- Interviewee's role in process.
- Topic has limited appeal to others.
- Frequently talks to people—sees it as part of CWG membership.
- Has been interviewed by papers and misquoted.
- Problems about dynamics of CWG (communication problems between CWG and DOE/LLNL employees).

22. Has the frequency of CWG meetings been:

- 1 Too frequent.
- 1 Not frequent enough.
- 12 About right.
- 1 New member—too soon to know.
- 43 Not applicable/no response.
- 58 Total

Comments included:

- If there's nothing going on, there's no reason to meet.
- When meetings are quarterly, if you miss one, its been several months. Monthly is appropriate.
- Think about new times—people are too tired late evening. Start at 5:00 p.m. or Saturday/Sundays.
- Start on time and end on time (know its difficult to stick to agenda)/meetings go too long.
- If everyone agrees on agenda in advance, make them stick to it.
- Every 6 months is enough for future—unless something comes up.
- Lab has been responsive to scheduling meetings when needed.
- 4-6 times/year.
- Hold meetings away from site in surrounding region.

23. Would you like to continue your membership in the future? If no, why not? If yes, how long should the CWG membership terms be?

- 11 Yes.
- 0 No.

3 Not sure.

44 Not applicable.

58 Total

Comments about membership terms include:

- Two years (two people).
- CWG should continue to be an open-to-the-public, self-selected group (three people).
- CWG could vote in other interested members of the public.
- Need to pursue new blood/Group is too small/Needs new leadership (five people).
- Annually. Find out who will stay for next year and recruit accordingly.
- Need to get a better representation of the community.
- It would be difficult for someone new to understand what's going on.
- Terms would help people not to feel forced to continue with group.
- Not sure group is worth time commitment for results produced.
- Terms might encourage participation.
- Don't need membership terms (three people); let people be on group for as long as they want.
- Have some sort of selection/volunteer process that established terms no more than several years at a time.

24. What would be a good ending point for this term?

Five comments were given:

- Don't know at this time in Superfund process.
- Let LLNL decide. Maybe start with new group in January 1993.
- Last meeting (August 1992) was a good point.
- Now.
- After RAIP comes out/upon the release of RD2.

FOR PAST CWG MEMBERS:

25. What would have encouraged you to remain active with the CWG?

Four comments were given:

- Worked in group for 2 and 1/2 years and was deflated with the 50-year cleanup with no parameters.
- Interviewee had made a 2-year commitment and assessed the situations as had been asked to do (e.g., cleanup options). Concerns were addressed; the cleanup option interviewee wanted was adopted, interviewee resigned from the CWG. Making changes to the group's mission or structure would not have had any impact on interviewee's decision to resign.
- Need a group that can affect some good as a result of its efforts. Need people who need to know about the site (i.e., have a vested interest such as the Public Health Department).
- Easier access to meetings and increased access to information before meetings.

## OTHER

26. Do you know of anyone else who may have concerns about the site cleanup and would like to talk to us? If yes, please give us their name(s) and phone number(s).

3	Yes.
<u>55</u>	No.
58	Total

27. Is there anything else you would like to add?

Closing comments, by interviewee group, were as follows:

CWG—Community Members:

- CWG should have at least minimal funding for stamps.
- TAG has been real boon in helping TVC analyze information, preparing site comments, etc.
- Felt that TAG advisor belonged only to TVC, not CWG. Doesn't feel represented by the TAG advisors.
- Final revised CRP should include all typed questionnaires without names to provide a balance and check on interpretation.
- Hard to separate everything that Lab does from Superfund. People want to discuss other Lab activities.
- Lab's been willing to address problems and R&D is good.
- There's always an undercurrent of secrecy at Lab, but understands it's necessary. Some members don't understand this.
- Some DOE/LLNL staff have said ridiculous things at meetings—if you source their names they will stop.
- PR people should understand what they're saying and say it even if its bad news—otherwise community will find out later and be angry (e.g., tritium issue has been settled).
- Difficult to tell if community relations program is sincere or only exists because it's a law. Very important for community—pay for cleanup, children.

Former CWG:

- Thinks LLNL is doing good things—worked at LLNL for one year. Thinks that from a PR standpoint, people should hear more about those good things through mechanisms like the Science Education Center.
- Thinks there's a need and interest in having more public involvement with LLNL activities and environmental issues.

LLNL Staff:

- Communications with TVC Technical Advisors has been very political, and the outcome is mixed.
- Overall community relations program good.

Random Lab Employees:

- Wondered how much other randomly chosen employees knew details about the cleanup.
- Public isn't concerned about the environment, but they are concerned about the mission of LLNL.
- Promised to be a better "ambassador" if we send her information.

Business Representatives:

- The community has lots of misperceptions about LLNL re: dangers.
- It's important that local politicians know what Lab is doing.
- Future Lab directions/domestic programs, bio research very exciting.
- Would like to see CRP when published.

Public Interest Groups:

- Paul Thrash at DOE is individually better and sincerely trying to make things better. Good contact for community relations program.

LLNL Neighbors:

- Hopes LLNL maintains its efforts and doesn't cutback. It's also good to keep up good community relations.

Elected Officials:

- Doesn't think public views cleanup as a problem. LLNL is spending too much money on the cleanup.

City and County Representatives:

- Lab's been a good neighbor.
- LLNL is doing a better job in last few years and is making an effort to get news out. One problem is that City must trust LLNL to cleanup and do what they're saying they're doing—City can't afford to monitor data, can look at basic issues only.

Past Attendees of CWG Meetings:

- Appreciates the information being shared with the public. It's important to make the community aware of the process.

## Appendix C

### **Community Work Group (CWG) Comments on the LLNL Community Relations Program (Submitted at August 27, 1992, CWG Meeting)**

Note: At the August 27, 1992, Community Work Group (CWG) meeting, members provided comments on community relations-related issues regarding the Record of Decision document and the draft Remedial Action Implementation Plan (RAIP). Those comments appear as numbers 9-12, below. In addition, the CWG provided general comments on the efficacy of the overall LLNL Livermore Site community relations program, as well as how the CWG process is working. Those comments appear on pages 2 and 3 of this appendix.

At the conclusion of the meeting, CWG members asked that LLNL consider all of these comments during the development of this post-ROD Community Relations Plan. For the record, the comments are as follows:

CWG Comments on the ROD and RAIP:

CWG POINT #9: THE CWG WANTS TO CONTINUE TO FUNCTION AS AN ADVISORY GROUP; LLNL SHOULD MAKE THAT OFFICIAL BY INCLUDING IT IN THE COMMUNITY RELATIONS PLAN, OR OTHER RELEVANT DOCUMENTS.

CWG POINT #10: THE CWG REQUESTS FUNDING FROM DOE TO HIRE ITS OWN TECHNICAL ADVISOR, PRODUCE PUBLICATIONS, ETC., AS APPROPRIATE.

CWG POINT #11: THE CWG REQUESTS 30-DAY PUBLIC COMMENT PERIODS AND PUBLIC MEETINGS ON THE ROD AND ON SUBSEQUENT REMEDIAL DESIGN DOCUMENTS.

CWG POINT #12: THE CWG FEELS STRONGLY THAT OUR AND THE PUBLIC'S ABILITY TO MONITOR AND PARTICIPATE IN THE SUPERFUND PROCESS SHOULD NOT END WITH THIS (THE PRAP) MEETING.

The CWG has a dual role, to: receive information on the Project, and to advise LLNL and DOE. The advisory role was not incorporated into the ROD. Public participation should be pre-decisional.

Regarding public comment periods and public meetings, LLNL did not commit to these in the ROD.

Also, the CWG wants money for resources such as postage stamps!

CWG NEXT STEP: The CWG would like LLNL Area Relations Manager Bert Heffner to address the issues that have been raised under this discussion in the Revised Community Relations Plan. Also, the CWG would like Bert to address the issues raised under the agenda item that followed that discussion: Agenda Item #3 (Public Involvement Issues—CWG Perspective on the Current Community Relations Program; Has the CWG been Effective?)

Public Involvement Issues

- CWG Perspective on Current Community Relations Program

The following is a summary of the group's discussion:

Activities That Were Effective	How The Program Could Be Improved
The CWG members have become more educated about the Ground Water Project.	Technical documents should always be sent out before the CWG meetings.
Fact sheets are more clear and more simple.	LLNL should continue distributing and improving upon the fact sheets (EIS/EIR fact sheets as a guide for simple, non-technical language.)
It's good that CWG has been getting more technical documents, as well.	DOE should use LLNL's mailing list for its own (DOE's) mailings.
The CWG has been starting to get pre-meeting documents on time. That's <u>good</u> .	LLNL needs to improve coordination with CWG on issuing relevant, Project-related press releases. This is important because CWG members may be called by the media to comment on the information in the press releases; CWG members need to get the information before the media does. LLNL needs to recognize the time difference between faxing vs. mailing out the releases. Recognize that <i>Newsline</i> stories are public, and also serve as an information source to the media. The CWG is an interface with the community.
	Re: public meetings... when DOE/LLNL use the same information in different hearings, it's confusing to interviewees, who don't know if they should repeat their comments for subsequent hearings. LLNL needs to explain to the public that the public's testimony is important and can be repeated. Otherwise, public feedback is restricted.
	The CWG needs to feed more information back to the community.

- Has the CWG been effective?

The group listed the following points:

Activities That Were Effective	How The Program Could Be Improved
CWG meeting places have been good.	Communication with DOE/LLNL has been one-way. CWG didn't feel that its feedback was desired. Want pre-decisional input.
Sometimes feel good about CWG work (e.g., pride in CWG statement)—the CWG has made a contribution to the community as a whole.	ROD didn't address many issues important to the CWG. This meant that the CWG was in the position of ratifying decisions already made.
LLNL has made some changes to the Project based on CWG comments.	The CWG sometimes feels powerless to affect DOE/LLNL decisions.
Work group members have had informal communications with the community. They have been used as an information resource.	In the <i>Ground Water Updates</i> , would like to have a column written by the CWG and/or the TVC Technical Advisor.
Recent logistical support that the CWG has gotten has been good.	The CWG hasn't had enough autonomy (lack of money for publications, for a consultant, etc.). Not enough logistical support all of the time.
The CWG does have an impact—keeps LLNL more careful in documentation, etc. CWG recognizes that this process has been “risky” for LLNL.	Attrition of lay participants -- check why they dropped out by interviewing them as part of the CR reassessment process.
CWG meetings have become more informal, which improves the discussion. Like the informality of the meetings (as opposed to the larger meetings they used to have). It's OK for DOE/LLNL to “make mistakes” and to have open discussions.	Need to get the right mix of cooperation and confrontation. Want to decrease the confrontational feel of the CWG meetings, and increase cooperation and trust. Trust in LLNL and DOE is low, in one CWG member's opinion. Need to have a commitment on the part of CWG, LLNL, and DOE to improve “balance.”
The CWG has made a good effort; its input has been well thought-out.	Is the CWG representative of the community?
	Can the issues of some CWG members be resolved informally (rather than including them as the opinion of the <u>entire</u> group)? This would reduce CWG meeting time and result in more representative group statements. Need to more clearly distinguish between opinions of individuals (and the groups they represent) and those of the group (the CWG) as a whole.
	CWG should interact more with each other.
	No more styrofoam cups at the meetings.

## Appendix D

### Information Repositories

Livermore Public Library  
 1000 South Livermore Avenue  
 Livermore, CA 94550 (510) 373-5500  
 Contact: Julie Casamajor, Coordinator of Information Services  
 Hours of Operation: Monday–Thursday 10 a.m.–9 p.m.  
 Friday 10 a.m.–6 p.m.  
 Saturday 10 a.m.–5 p.m.  
 Sunday 1 p.m.–5 p.m.

LLNL Visitors Center (entrance off Greenville Road)  
 Lawrence Livermore National Laboratory  
 Livermore, CA 94550 (510) 422-9797  
 Contact: Sandy Basso, Area Relations Office  
 Hours of Operation: Monday and Tuesday 9 a.m.–4 p.m.  
 Wednesday 12:30 p.m.–4 p.m.  
 Thursday and Friday 9 a.m.–4 p.m.

### Meeting Locations

LLNL - Almond Avenue School  
 Pod C, Room A  
 Livermore, CA 94550 (510) 422-0642  
 Contact: Sherry Cardeno  
 Capacity: 100 (good for Community Work Group Meetings)

Livermore High School  
 600 Maple Avenue  
 Livermore, CA 94550 (510) 447-9500  
 Contact: Noreen Daniels, Community Services  
 Capacity: Student Union - 200  
 Lecture Hall - 50

LLNL Visitors Center (entrance off Greenville Road)  
 Lawrence Livermore National Laboratory  
 Livermore, CA 94550 (510) 422-9797  
 Contact: Sandy Basso, Area Relations Office

Capacity: Auditorium - 30

## Appendix E

### List of Key Project Contacts for More Information

#### A. Federal Elected Officials

Senator Barbara Boxer

Washington, D.C. Office:

Hart Senate Office Building

Washington, D.C. 20510

(202) 224-3553

District Office:

1700 Montgomery St., Suite 240

San Francisco, CA 94111

(415) 403-0100

Senator Diane Feinstein

Washington, D.C. Office:

Hart Senate Office Building

Washington D.C. 20510

(202) 224-3841

District Office:

1700 Montgomery St., Suite 305

San Francisco, CA 94111

(415) 249-4777

Representative Pete Stark (District 13)

Washington, D.C. Office:

1125 Longworth House Office Building

Washington, D.C. 20515

(202) 225-5065

District Office:

22300 Foothill Blvd. #1029

Hayward, CA 94541

(510) 829-2924

Roxanne Verduzio, Legislative Aide

Representative Bill Baker (District 10)

Washington D.C. Office:

1724 Longworth House Office Building

Washington, DC 20515

District Office:

1801 N. California Blvd., Suite 103

Walnut Creek, CA 94596

(510) 932-8899

Ann Jordan, District Director

B. State Elected Officials

Senator Daniel Boatwright (District 7)

Sacramento Office:

State Capitol

Room 3086

Sacramento, CA 95814

(916) 445-6083

Senate District Office:

1000 Burnett Street, Suite 130

Concord, CA 94520

(510) 830-2871

Brett Hughs, Administrative Assistant

Assemblyman Richard Rainey (District 15)

Sacramento Office:

(916) 445-6161

Rm 4015

State Capitol

Sacramento, CA 95814

Assembly District Office:

1948 Mt Diablo Blvd.

Walnut Creek, CA 94596

(510) 933-9196

Cindy Hughes, Office Manager

C. Local Officials

Alameda County Board of Supervisors

Hall of Administration

1221 Oak Street, Room 536

Oakland, CA 94612

(510) 272-6691

Chairman Edward R. Campbell

(District 1)

Gail Steele

(District 2)

Don Perata

(District 3)

Mary King

(District 4)

Keith Carson

(District 5)

City of Livermore

City Hall

1052 South Livermore

Livermore, CA 94550

(510) 373-5100

Cathie Brown, Mayor

Tom Vargas, Vice Mayor  
Lee Horner, City Manager  
John Hines, Director of Public Works  
Robert Brown, Director of Planning

## City Council

Cathie Brown  
Tom Vargas  
Tom Reitter  
John Stein  
Ayn Wieskamp

D. Federal, State, and Local Agencies

Alameda County Flood Control & Water Conservation District (Zone 7)

5997 Parkside Drive

Pleasanton, CA 94566

Jerry Killingstad, Chief, Water Resources Engineering (510) 484-2600

California Environmental Protection Agency, Department of Toxics Substances Control

700 Heinz St.

Berkeley, CA 94710

Bob Feather, Associate Waste Management Engineer (510) 540-3844

California Regional Water Quality Control Board

2101 Webster St., Suite 500

Oakland, CA 94612

Elizabeth Adams, Environmental Specialist III (510) 286-3980

U.S. Department of Energy

1333 Broadway

Oakland, CA 94612

Bella Dizon, Project Manager (510) 422-0752

U.S. Environmental Protection Agency

75 Hawthorne Street

San Francisco, CA 94105

Mike Gill, Remedial Project Manager (415) 744-2383

Dorothy J. Wilson, Community Relations Specialist-III (415) 744-2179

or Toll-free

1-800-231-3075

E. Lawrence Livermore National Laboratory

LLNL Environmental Protection Department

P.O. Box 808

Livermore, CA 94550

Bill McConachie, Leader, Environmental Restoration Division

(510) 423-3501

John Ziagos, Section Leader, Livermore Site

(510) 422-5479

Bert Heffner, Area Relations Manager

(510) 422-9799

F. MediaNewspapers:*The Independent*

P.O. Box 1198

2219 First Street

Livermore, CA 94550

(510) 447-8700

*Oakland Tribune*

67 Jack London Square

Oakland, CA 94607

(510) 208-6300

*San Francisco Chronicle*

901 Mission Street

San Francisco, CA 94119

(415) 777-1111

*San Francisco Examiner*

P.O. Box 7260

110 Fifth Street

San Francisco, CA 94103

(415) 777-2424

*Tri-Valley Herald*

P.O. Box 10367

Pleasanton, CA 94588

(510) 734-8600

*Valley Times*

P.O. Box 607

127 Spring Street

Pleasanton, CA 94566

(510) 462-4160

Radio Stations

KKIQ - 101.7

7901 Stone Ridge Dr., Suite 525

Pleasanton, CA 94588

(510) 455-4500

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## Appendix F

### List of Acronyms and Abbreviations Used in this Document

AEC	Atomic Energy Commission
Cal/EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund)
CR	Community Relations
CRC	Community Relations Coordinator
CRP	Community Relations Plan
DOE	Department of Energy
DOD	Department of Defense
DTSC	Cal/EPA, Department of Toxic Substances Control
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EPD	Environmental Protection Department
FFA	Federal Facilities Agreement
LLNL	Lawrence Livermore National Laboratory
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
PCE	Perchloroethylene (also known as tetrachloroethylene)
PPB	Parts per billion
RAIP	Remedial Action Implementation Plan
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RWQCB	Cal/EPA, Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
TAG	Technical Assistance Grant
TCA	Trichloroethane
TCE	Trichloroethylene
TVC	Tri-Valley Citizens Against a Radioactive Environment (Tri-Valley CAREs)
VOC	Volatile Organic Compound (e.g., TCA, TCE, PCE, and chloroform)

# Appendix G

## Glossary

Air Stripping (with granular activated carbon treatment of the vapors). Air stripping is a commonly used process in which volatile organic compounds (VOCs) and fuel hydrocarbons (FHCs) are removed from water. Extracted ground water is transported via pipes to a tower, where it is sprayed into the top of the tower. As the water cascades down through packing material within the tower, a high-powered blower forces air upward through the water. This causes the contaminants to come out of the water and into the air. Thus, the air flow cleans or “strips” the water of volatile contaminants. The air containing the contaminants is then passed through granular activated carbon (GAC) filters prior to release to the atmosphere. This virtually eliminates measurable air emissions of VOCs and FHCs.

Aquifer. A saturated layer of rock or soil below the ground surface that can supply usable quantities of ground water to wells and springs. Aquifers can be a source of water for domestic, agricultural, and industrial uses.

Department of Toxic Substances Control. A State department within the California Environmental Protection Agency with responsibility for incidents of hazardous waste contamination that affect public health.

Community Relations Plan (CRP). The CRP outlines specific community relations activities that will occur during the various phases of activity at a Superfund site. The CRP also outlines how the public will be kept informed of work at the site and the ways in which citizens can review and comment on decisions that may affect site actions. This document is typically placed in the information repository(s) established for the site.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Also known as Superfund, this law authorizes the Federal government to respond directly to releases of hazardous substances that may endanger public health or the environment. The U.S. Environmental Protection Agency is responsible for managing Superfund.

In 1986, the President signed into law the Superfund Amendments and Reauthorization Act (SARA), which amended and reauthorized CERCLA for 5 years at a total funding level of \$8.5 billion. SARA also strengthened State involvement in the cleanup process, and encouraged the use of treatment technologies and permanent solutions.

Department of Energy (DOE). An agency of the U.S. Government. DOE owns the Lawrence Livermore National Laboratory (LLNL) and has an agreement with the University of California to administer the day-to-day operations of LLNL.

Environmental Restoration Program. A DOE program to clean up environmental contamination caused by past waste practices at DOE facilities.

Federal Facility. A facility that is owned and operated by the Federal government. With the passage of SARA, Federal facilities became subject to the same requirements that other responsible parties must adhere to once they are placed on the Superfund National Priorities List.

Fuel Hydrocarbons (FHCs). Refers to carbon-containing compounds that make up gasoline.

Granular Activated Carbon (GAC). GAC, used in filters during the air stripping process, has a strong attraction for VOCs and (FHCs). As air flows through the filter, the contaminants cling to the carbon, thereby removing the contaminants. The GAC must be replaced periodically because the filter eventually reaches its maximum ability to absorb the contaminants. The used filters are subsequently treated offsite to destroy or recycle both the filters and the contaminants.

Ground Water. Underground water that fills pores in soils or openings in rocks to the point of saturation.

Ground Water Basin. A naturally occurring area where water is stored below the ground surface.

Hot Spot. High levels of chemical concentration that are notably more concentrated, relative to the surrounding areas.

Ion Exchange. The ion exchange process is a proven method of removing metals from water. The ground water is pumped through a bed of ion exchange resin, in which the selected ions are exchanged for nonhazardous ions that are chemically attached to the resin. Periodically, the ion exchange resin bed must be regenerated by passing a concentrated solution of a nonhazardous salt through the columns. The waste solution may require further treatment or disposal.

Isoconcentration Contour. A line of equal concentration, which separates areas of higher and lower concentration; used to illustrate the distribution of chemicals.

Liter - A metric measure of liquid volume, equal to a little more than a quart.

National Priorities List (NPL). EPA's list of the top priority hazardous waste sites in the country that are subject to the Superfund program.

Parts Per Billion (ppb). A unit of measure for the concentration of a substance in its surrounding medium. For example, one billion grams of water containing one gram of salt has a salt concentration of one part per billion.

Pilot Study. A study conducted during LLNL's Remedial Investigation/Feasibility Study process. The pilot studies focused on several experimental treatment technologies, and provided data necessary for the final selection of cleanup methods.

Plume. A well-defined, usually mobile, area of contamination found in surface water or ground water.

Regional Water Quality Control Board (RWQCB). A State board under the California Environmental Protection Agency that maintains water quality standards for areas within its jurisdiction and enforces State water quality laws.

Risk Assessment. A risk assessment is a scientific procedure that uses facts and assumptions to estimate the potential for adverse effects on human health from exposure to chemicals. Potential risk is determined by assessing the amount of a material a person may ingest or come into contact with in water, soil, and air, and comparing the estimated exposure to an amount of the material known or suspected to cause harm. The risk is expressed as the chance of a disease or an effect occurring. For example, a risk level of one in one million means that a person coming into contact with a certain chemical would increase his or her normal risk of developing cancer (which for Americans is about a one in four chance) by one in one million.

Solvent. A substance capable of dissolving another substance to form a solution. The chief uses of solvents are as industrial cleaners, and as components in paints and pharmaceuticals. Many solvents are flammable and, to varying degrees, toxic as well.

Superfund. The common name used for the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

Superfund Amendments and Reauthorization Act (SARA). Modifications to CERCLA enacted on October 17, 1986.

Tetrachloroethylene (PCE). An organic compound used as a cleaner or solvent. PCE possesses four chlorine atoms per molecule and is a central nervous system depressant that has been shown to cause cancer in laboratory animals.

Trichloroethylene (TCE). An organic compound widely used as an industrial degreaser; as a solvent for oils, paints, and varnishes; and as a dry cleaning agent. TCE contains three atoms per molecule and is similar to PCE in toxicological effects.

Tritium. Tritium is a radioactive isotope (form) of hydrogen. Since tritium "behaves" just like hydrogen chemically, it is usually found attached to molecules in place of hydrogen. For example, a water molecule may exchange one of its hydrogen atoms for a tritium atom, resulting in "tritiated water" sometimes referred to as "HTO." Tritium is produced both by natural processes (the interaction of cosmic rays with the atmosphere) and by man-made processes (in nuclear weapons and in nuclear reactors). A great deal of tritium was released to the general environment in the 1950s and early 1960s by *aboveground* nuclear weapons testing at the Nevada Test Site. Relatively small amounts of tritium are released from nuclear reactors and related facilities in various locations around the world. Both the natural and man-made sources have contributed (and continue to contribute) to a world-

wide “background” level of tritium in water and soil. The fact that tritium emits very low-energy radiation, is diluted throughout the body, and is eliminated fairly quickly from the body makes tritium one of the least hazardous of radioactive materials.

U.S. Environmental Protection Agency (EPA). Federal Agency responsible for administering the Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA) or “Superfund” as it is commonly known. EPA works with State and local agencies, providing technical oversight for cleanup activities at Federal facilities regulated by the Superfund program.

Volatile Organic Compound (VOC). A group of organic compounds characterized by their tendency to evaporate easily.

Zone 7. Common name for the Alameda County Flood Control and Water Conservation District, Zone 7, the water management agency for the Livermore-Amador Valley with responsibility for water treatment and distribution. Zone 7 also is responsible for management of agricultural and surface water and the ground water basin.

Ultraviolet Light/Hydrogen Peroxidation (with air stripping). This process uses a strong oxidizing agent (usually hydrogen peroxide or ozone) and ultraviolet (UV) light to destroy VOCs and FHCs). Ground water is first mixed with the oxidizing agent, then passed through a chamber in which the treated water is exposed to high intensity UV light. As a result, the toxic compounds are broken down into nontoxic components such as water and carbon dioxide, and very low concentrations of hydrogen chloride. Any remaining contaminants are removed by air stripping. Because the remaining concentrations are quite low, the water can be treated by injecting air into the bottom of a tank. The VOCs and (FHCs) pass into the air stream, which is then filtered by GAC filters.

Vadose Zone. Also called the unsaturated soil area, these are the soils located above the ground water, belowground.

Vacuum-Induced Venting. In this process, a vacuum is applied to one or more wells in the unsaturated soil, causing air to flow through the affected soil and up to the surface to be remediated. FHCs and VOCs are removed from the soil by the moving air. The vapors are drawn to the surface for treatment by a process such as granular activated carbon.

## Appendix H

### PAST AND FUTURE COMMUNITY RELATIONS ISSUES

This appendix summarizes the comments that the original CWG made on several of the more important Project documents. It also lists the issues that LLNL and DOE expect will be important to the public in the future. This appendix is included as a record of past interactions with the CWG, as well as a written recognition of the potential challenges that LLNL and DOE face in the years to come in responding to community concerns.

In total, there are four sections to this appendix:

- A. Questions and issues that are likely to be important in the future.
  - B. CWG's comments on LLNL's proposed cleanup plan (and DOE/LLNL responses to those comments).
  - C. CWG comments on the Record of Decision and Draft Remedial Action Implementation Plan Documents (and DOE/LLNL responses to those comments).
  - D. CWG member comment on the Remedial Design 1 Document (and DOE/LLNL's response to that comment).
- A. QUESTIONS AND ISSUES THAT ARE LIKELY TO BE IMPORTANT IN THE FUTURE (based on CWG discussions and interactions that DOE/LLNL have had with other members of the community)
- Issue #1: What is DOE's cleanup commitment at the LLNL Livermore Site? Is it (a) to use the cleanup approach agreed to in the Record of Decision, which is estimated to take 53 years but which may take longer, depending on how actual field work progresses, or (b) to definitely clean up the contaminants in 53 years, using the cleanup approach outlined in the Record of Decision. Put another way, what if it becomes clear in the future that the cleanup is going to take a lot longer than 53 years?
- Issue #2: What criteria will DOE/LLNL use to decide whether additional funds will be used to accomplish the cleanup within the originally estimated timeframes?
- Issue #3: As technologies and methods become available that could shorten the cleanup timeframes (i.e., to less than 53 years), what criteria will DOE apply for deciding whether they are cost-effective enough to be incorporated into the Project cleanup? In other words, what does "optimizing" the cleanup really mean?
- Issue #4: The public input on the kinds of policy factors and decisions that shape the above three issues (#s 1-3).
- Issue #5: The CWG wants to see additional analysis regarding the shorter cleanup timeframe (e.g., a 30-year analysis) and a commitment regarding the availability of that documentation.
- Issue #6: CWG wants a DOE commitment to provide continued funding for the level of cleanup activity described in the Record of Decision document. Short of that, they want to influence the public to press for adequate DOE funding.
- Issue #7: What to do about potential schedule slippages for Remedial Design documents and other aspects of the design and cleanup.
- Issue #8: With regard to radionuclides—particularly tritium—some members of the public don't want the treatment facilities to process any radionuclides (not just those present in concentrations above regulatory limits). Also, some members of the public say that no water containing radionuclides should be discharged off-site (not just discharge water with radionuclides present in concentrations above regulatory limits). A related issue is the desire for more frequent monitoring of gross alpha and beta particles and tritium.
- Issue #9: Some members of the CWG have ongoing concerns about tritium and the extent to which LLNL has a handle on where it is (e.g., in the soils and ground water). They don't think that the tritium is "under control."

Issue #10: How to provide detailed information about technology assessments and analysis to the public, prior to deciding whether the technology could be used to improve LLNL's Livermore Site cleanup. (Note: LLNL has committed to talking about these issues at CWG meetings and with the Technical Advisors.)

Issue #11: Beyond the graph plotting contaminant mass removal milestones against cleanup time, how can the CWG track Project progress? Will these milestones be updated periodically? (Note: LLNL agreed to include this graph in the final Remedial Action Implementation Plan and *Ground Water Update* newsletter or equivalent.)

Issue #12: Some members of the CWG want DOE/LLNL to put attention to the interface between the old and new pollution. Some still don't understand how new discoveries will be incorporated into the LLNL Livermore Site Superfund process.

#### B. CWG'S COMMENTS ON LLNL'S PROPOSED CLEANUP PLAN (and DOE/LLNL responses to those comments)

During the fall 1991 public comment period on the LLNL Livermore Site cleanup plan (called the draft PRAP), a member of the CWG read a statement into the November 6, 1991, public meeting record that summarized the group's impressions of the cleanup plan. DOE/LLNL considered those comments as it finalized the cleanup plan. LLNL responded formally to the CWG in the Responsiveness Summary document, which was included as an appendix to the LLNL Livermore Site Record of Decision (ROD).

This section summarizes the CWG's comments about the cleanup plan. It also explains the actions that LLNL and DOE did or did not take, based on each comment. For anyone interested in a more detailed review, the reader is referred to the location in the Responsiveness Summary where DOE/LLNL's response to each comment can be found. This location is noted in brackets [] following each number comment on the fact sheet. Review copies of the Responsiveness Summary (which is part of the ROD) can be found in the Information Repositories located at the LLNL Visitor's Center and at the Livermore Public Library.

##### CWG Statement Introduction

In general, LLNL has done a good job of describing most of the Superfund cleanup issues, providing a series of health risk assessments, and putting together a cleanup proposal. However, the Superfund process, as reauthorized by Congress in 1984, is intended to operate as a two-way street whereby information flows not only from the site to the community, but also from the community to the facility. It is in this spirit that the CWG offers its subsequent comments. [A1a—Section in Responsiveness Summary where comment is answered]

##### Specific CWG Points

1. The PRAP should include a timetable so that interested parties can monitor how the Project is proceeding relative to its 50-year target. It should be a monitorable, verifiable schedule showing how and when the cleanup is to be implemented. Specifically, the plan should contain both containment and mass removal milestones pegged to the regular five-year cleanup reviews that are part of the Superfund process. A possible approach was drafted by Tri-Valley CAREs' Technical Advisor, Greg Mello, and submitted to LLNL. [A4a]

*Action Taken/Not Taken by DOE/LLNL based on this comment: The regulatory agencies, DOE, and LLNL agreed that such information was not warranted in a PRAP, nor did the regulatory agencies want such information to be included in the LLNL PRAP. Consistent with other EPA Superfund Sites, DOE/LLNL decided to include schedules and performance milestones in the Remedial Action Implementation Plan (RAIP) and the Remedial Design/Remedial Action documents. For example, the draft RAIP contains a schedule with information that shows when: treatment facilities are due to be tested and operated; remedial design reports are to be submitted for public and regulatory agency review; and final reports are due to be issued.*

2. The PRAP and the Administrative Record in this Superfund process should contain a written comment by DOE to provide complete, stable, long-term funding for this Project. DOE cannot be sued by the regulatory agencies for failure to remediate. This particularly alarms the CWG. The DOE could assuage CWG concerns with a signed, legally-binding commitment. [A4h]

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE cannot legally commit to funding cleanup (or any other activities) beyond the current budget year appropriation. However, DOE places a high priority on risk reduction, compliance, and associated contamination cleanup in its annual budget submittals. DOE understands that cleanup delays will likely increase the overall costs of the cleanup at LLNL as well as other facilities, so it is in DOE's best interest to support an adequately funded and progressive cleanup effort through its annual Congressional budget requests each year.*

*To meet CWG concerns, DOE committed in the Responsiveness Summary to request from Congress, through the OMB, funding necessary to establish hydraulic control of contaminant plumes, both offsite and onsite, as fast as technically feasible. In addition, DOE also committed to removing as much contaminated mass as possible in the shortest time with currently available technology.*

3. The greatest threat to neighbors' health at this time is from the VOCs in the westerly-migration plume. VOC cleanup needs to proceed on a timely and thoughtful basis. At the same time, work to address questions about tritium contamination in the vadose zone and ground water needs to continue and to be incorporated into the PRAP. [A1b]

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE/LLNL agree that plume containment is a high priority. LLNL did not revise the PRAP in order to incorporate this request, because delays in acceptance of the final ROD would have delayed implementation of the complete cleanup. Continuous, full cleanup can begin only after the ROD is signed. To meet the concerns of the CWG, the ROD includes language that recognizes this priority and establishes plume containment as a remedial objective. In addition, the PRAP was revised prior to its release based on CWG questions related to tritium. For example, additional information regarding tritium was included on pages 7 and 10; Figure 6 was revised to show the area where tritium exceeds its MCL in ground water; plans for avoiding recharge of treated ground water if it should contain tritium above the MCL were clarified on page 17.*

4. The movement of the VOC plume west of LLNL is of great concern to the CWG. CWG would like to see the PRAP contain a written commitment to 100% capture of the plume. It also should contain adequate monitoring wells in this northwesterly zone to confirm full capture. Finally, the PRAP should offer specific means for verification of plume capture and cleanup. [A1b; A4a; A4h]

*Action Taken/Not Taken by DOE/LLNL based on this comment: Again, LLNL did not revise the PRAP in order to incorporate this request, because delays in acceptance of the final ROD would have delayed implementation of the complete cleanup. However, to meet the concerns of the CWG, the ROD includes language that recognizes that plume containment is a high priority and establishes plume containment as a remedial objective. Plume containment will be verified with an appropriate monitoring system. In addition, the draft RAIP includes plans for more extraction and monitoring wells than were planned for in the ROD.*

*Finally, as mentioned above, the regulatory agencies, DOE, and LLNL agreed that verification information on plume capture and containment was not warranted in the PRAP, nor did the regulatory agencies want such information to be included in the LLNL PRAP. Consistent with other EPA Superfund Sites, schedules and performance milestones will be presented in the RAIP and the Remedial Design/Remedial Action documents. For example, the draft RAIP contains a schedule with information that shows when treatment facilities are due to be tested and operated, Remedial Design reports are to be submitted for public and regulatory agency review, and final reports are due to be issued.*

5. The PRAP is not sufficiently specific regarding how and where the treated water will be returned to the ground water. As a result, there seems to be the potential for spreading low levels of contaminant offsite, particularly south of East Avenue if the recharge basin on Sandia' property will continue to be used. The PRAP should illustrate all plans for discharging the treated water, especially water which may be near the MCL for one or more of the pollutants. [A7c]

*Action Taken/Not Taken by DOE/LLNL based on this comment: Again, LLNL did not revise the PRAP in order to incorporate this request, because delays in acceptance of the final ROD would have delayed implementation of the complete cleanup. In fact, LLNL believes that Figure 7 of the PRAP provides fairly specific information regarding actual and possible locations of recharge wells. To address the concerns of*

the CWG, the ROD does state that all treated water discharged from LLNL treatment facilities will comply with discharge limits established by State law and enforced by the RWQCB. Plans for discharge of treated water are also discussed at length in Section 3.3 of the draft RAIP. In addition, LLNL is conducting ongoing analysis that may suggest more optimum locations for discharging the treated water. This analysis will be incorporated into the Remedial Design documents as the information becomes available. LLNL will make these documents available for public review.

6. At the same time that old pollution is cleaned up, it is essential that current sources of potential contamination be carefully controlled. The CWG is aware that the Superfund program is not intended to deal directly with current sources. But cleanup over the next 50 years will clearly be impacted by pollution generated over that time period. [A3b]

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE/LLNL made no specific changes to the ROD or draft RAIP based on this comment because it is the explicit responsibility of LLNL programs and other LLNL environmental divisions to ensure that ongoing operations are environmentally protective and compliant. For example, DOE/LLNL have a waste minimization program intended to control and minimize current sources of potential contamination. The Responsiveness Summary explains which divisions are responsible for various types of environmental programs, and some of the procedures for dealing with hazardous and radioactive waste. The CWG's comment was noted by the head of LLNL's Environmental Protection Department.*

7. The technical basis for the PRAP often reflects optimistic thinking and modeling. For example, the possibility of contaminants leached in the ground water from the vadose zone over time may be more serious than is indicated by the PRAP. Also, the cleanup time calculated in the PRAP uses the assumption that the LLNL Livermore Site can be treated as a well-mixed tank. Under the preferred alternative, a realistic estimate of cleanup duration may be significantly longer, perhaps as much as twice as long. These assumptions could have a negative impact on achieving a complete cleanup in a timely manner. [A7f]

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE/LLNL made no specific changes to the ROD or draft RAIP based on this comment because LLNL believes that the technical basis for the PRAP and the ongoing work is sound. The regulatory agencies have concurred with this conclusion. However, LLNL provided very detailed information in the Responsiveness Summary regarding the specific points raised by the CWG in this comments. LLNL recognizes that, in past CWG meetings, there was little detailed discussion regarding these points. LLNL hopes that the information provided in the Responsiveness Summary shows that staff have spent considerable time and resources on these issues, and that ongoing research is attempting to further reduce Project uncertainties.*

8. The preferred alternative was not compared against other faster cleanup possibilities. It is difficult for the CWG to choose a 53-year cleanup plan on its technical merits when these merits are not compared with the pros and cons of a 30- or a 20-year cleanup program. The PRAP should lay out the technical basis for making choices among these feasible alternatives. The CWG would like to see the above-mentioned issues and changes incorporated into the PRAP and the upcoming ROD. We believe that this would strengthen what is in many respects a well thought out PRAP.

*Action Taken/Not Taken by DOE/LLNL based on this comment: Again, LLNL did not revise the PRAP in order to incorporate this request, because delays in acceptance of the final ROD would have delayed implementation of the complete cleanup. Regulatory deadlines necessitated that a limited number of pump-and-treat strategies be presented in the Feasibility Study and PRAP. However, to respond to the concerns of the CWG, LLNL points out in the Responsiveness Summary that, within the general pump-and-treat framework outlined in the PRAP, there is latitude to adjust the extraction and injection rates and patterns to try to shorten cleanup times. LLNL also states that it is planning to incorporate such enhancements into the Remedial Design documents. This objective has been expressly called out in the draft RAIP, in response to CWG concerns.*

*In addition, because LLNL understands that reducing the cleanup time is an important issue to the CWG, LLNL wrote an article for the July 1992 issue of the Ground Water Update newsletter that talks about LLNL's applied work in this area. LLNL and DOE are devoting significant resources to explore extraction*

plans that can clean up the contaminants faster, at a reasonable cost to the taxpayers. DOE/LLNL will keep the CWG and the general community abreast of this research through continuing communications.

9. Regarding the future of the CWG, the CWG wishes to continue to function as an advisory group to the LLNL Livermore Site cleanup. The CWG wants to remain part of the LLNL CR program as outlined by SARA for the foreseeable future. LLNL has verbally indicated a general willingness to continue the group beyond the ROD. The CWG asks that this be made official, possibly by updating the CRP or other relevant documents. [C1a]

*Action Taken/Not Taken by DOE/LLNL based on this comment: LLNL and DOE included language in the ROD that formalizes a commitment to continue supporting a CWG, if desired by the local community. This commitment is expanded upon in the draft RAIP, which states on page 46 that:*

*“..If the community assessment interviews show that there is sufficient community interest, DOE/LLNL will continue to support a CWG or other formal group process to assure community input. If appropriate, group meetings would be held at least every time that DOE/LLNL submit a primary draft document to the regulatory agencies (e.g., the Remedial Design reports). Background material would be provided to group members in advance of each meeting. As in the past, DOE/LLNL will consider group and other community input in subsequent revisions of those documents...”*

*The draft RAIP also explains the process for revising the Community Relations Plan, (CRP) as mentioned by the CWG in its comment. In addition, because DOE/LLNL recognize that this issue is important to the CWG, LLNL has sent several letters to the CWG that explain this process and provide and approximate schedule for the Community Relations Plan revision.*

10. The CWG requests funding from DOE to hire its own technical advisor, produce publications, et cetera, as appropriate. [C2a]

*Action Taken/Not Taken by DOE/LLNL based on this comment: Because Congress has already established a vehicle for the kinds of activities that the CWG is requesting in this comment, DOE has denied the CWG's request for technical advisor and independent community relations funding. In the Responsiveness Summary, the CWG was directed to EPA's Technical Assistance Grant program, which is set up to provide the kinds of assistance that the CWG is requesting. The EPA Community Relations Coordinator that can provide information about this program is Dorothy Wilson. Her number in San Francisco is 415-744-2179. If all Federal criteria are met, EPA will award one TAG grant of up to \$50,000 (with a one-time renewal) per Superfund site. This grant may be awarded to one or more public interest group(s) during the life of the Superfund cleanup process. EPA awarded an initial TAG grant to Tri-Valley CAREs for the LLNL Livermore Site Cleanup Project.*

11. The CWG requests a 30-day public comment period for the ROD. As numerous conversations with LLNL, DOE, and regulatory agencies have indicated, the remedial design phase of this cleanup will be significant in determining the completeness and achievability of the cleanup. Therefore, a public meeting and comment period should be incorporated at this time. This, as with other suggestions, should be codified as part of the ROD. [C3a; C3b]

*Action Taken/Not Taken by DOE/LLNL based on this comment: LLNL and DOE denied this request for a formal public comment period and meeting—both for the ROD and for the Remedial Design documents. However, in both the ROD and in the draft RAIP, DOE/LLNL included language that reaffirms its commitment to maintaining a community relations program throughout the life of the cleanup. Specifically, DOE/LLNL committed in the draft RAIP that, if there is a CWG or other formal group process, it will hold meetings with the group when remedial design documents are issues. The CWG meetings of August 20th and August 27th were set up for that very purpose. In addition, LLNL will issue public notices and fact sheets, as appropriate, announcing that these documents are available for review. In lieu of a formal public comment period on the ROD, LLNL compromised by agreeing to hold a CWG meeting that, like all meetings, was open to the public.*

12. The CWG feels strongly that our and the public's ability to monitor and participate in the Superfund process should not end with this meeting. [C4b]

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE/LLNL included language in both the ROD and in the draft RAIP that reaffirms its commitment to maintaining a community relations program throughout the life of the cleanup. The draft RAIP lists specific activities that are likely to be part of such a program. It also explains that the community relations program will be revised shortly, to codify DOE/LLNL's specific commitments to post-ROD public involvement.*

- C. CWG COMMENTS ON THE RECORD OF DECISION DOCUMENT, DRAFT REMEDIAL ACTION IMPLEMENTATION PLAN, AND COMMUNITY RELATIONS PROGRAM, WHICH THE CWG SAID THEY CONSIDER TO BE UNRESOLVED ISSUES (MADE AT THE AUGUST 1992 CWG MEETINGS)

On August 20th and 27th, the CWG met to discuss the final Record of Decision document on the LLNL Livermore Site cleanup, as well as provide comments on the draft Remedial Action Implementation Plan. The CWG members agreed upon the following 10 comments as being issues that they wanted LLNL and DOE to consider in the future -- particularly in finalizing the Remedial Action Implementation Plan and in preparing the Revised Community Relations Plan document.

Issue #1: The CWG wants an advisory group to continue to function. Make that official by including it in the Community Relations Plan, or other relevant documents.

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE and LLNL will continue to sponsor a CWG for approximately two more years – through the time when the last Remedial Design (RD) document is finalized. The last RD document is currently scheduled to be finalized in November 1994. DOE/LLNL will also seek to broaden the current CWG membership to make it more representative of the area community. The role of the CWG remains advisory with meetings focused only on LLNL Livermore Site cleanup issues. As has been the case all along, DOE/LLNL will have final decision-making authority for all site-related issues. The commitment to continuing a CWG will be made official in the Revised Community Relations Plan.*

Issue #2: Some members of the CWG want funding from DOE to hire a Technical Advisor, produce publications, etc., as appropriate.

*Action Taken/Not Taken by DOE/LLNL based on comment: DOE is already providing funds for a Technical Assistance Grant (TAG) – the one that Tri-Valley CAREs is currently administering. DOE will not provide additional Technical Advisor funds for the LLNL Livermore Site Superfund Project. Besides providing money to hire consultants, the grant administrators are expected to communicate to the community the findings of the technical review that is being conducted with the grant money. It is currently Tri-Valley CAREs' responsibility to disseminate this information with a portion of their TAG money.*

*For more on this topic, see the response to Issue #5, below.*

Issue #3: Some members of the CWG request a 30-day public comment period and public meetings on the Remedial Design documents. The CWG's roles should be advisory and pre-decisional.

*Action Taken/Not Taken by DOE/LLNL based on this comment: It is our experience that small group meetings such as those we've had with the CWG provide more productive pre-decisional two-way communication on*

*Project issues than do public meetings. For this reason, DOE/LLNL will continue working through the CWG to receive pre-decisional input on Remedial Design documents. As it has in the past, the CWG is expected to continue to function in an advisory capacity on these documents, with DOE/LLNL making the final decisions.*

*DOE/LLNL will send the CWG members copies of the draft Remedial Design documents at the same time as the regulatory agencies. As specified in the agreement with the regulators, there will be a 60-day agency review period for each Remedial Design document, as well as for the Revised Community Relations Plan. The CWG also will have 60 days to review these documents. The CWG is expected to hold a meeting approximately half-way through each 60-day review period to make group comments on the Remedial Design and Revised Community Relations Plan documents. As always, these meetings will be open to the public. LLNL will distribute press releases prior to each meeting.*

Issue #4: The CWG feels strongly that our and the public's ability to monitor and participate in the Superfund process should not end with the Proposed Remedial Action Plan meeting.

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE/LLNL are committed to maintaining a community relations program throughout the life of the LLNL Livermore Site cleanup. The community relations activities that LLNL plans to conduct during the design and implementation phases of the cleanup are discussed in the Draft Revised Community Relations Plan, which was released in February 1993. A CWG meeting was held on December 16, 1992 to present its general direction. DOE/LLNL met with the CWG in early March to further discuss the details of the plan.*

Issue #5: This is a summary of a list of suggestions that individual members of the CWG made for improving the LLNL Livermore Site community relations program.

- a. The CWG wants money for resources such as postage stamps and sufficient logistical support for CWG meetings. For example, technical documents need to be sent out before the CWG meetings.
- b. LLNL, along with DOE and the CWG members, should commit to trying to decrease the confrontational feel of the CWG meetings, and increase cooperation and trust. Also, the CWG should interact more with each other.
- c. The CWG should be more representative of the community.
- d. The issues of some CWG members should be resolved informally, rather than including them as the opinion of the entire group. In the CWG meetings, there is a need to more clearly distinguish between the opinions of individuals (and the groups they represent) and those of the CWG as a whole.
- e. LLNL should stop using styrofoam cups at CWG meetings.
- f. LLNL should improve coordination with the CWG on issuing relevant, Project-related press releases.
- g. The CWG wants the opportunity to write articles for the Project newsletter. Alternatively, they want Tri-Valley CAREs' Technical Advisors to contribute to the newsletter. The name and telephone number of a CWG contact person should be included in Project mailings to the public.

- h. LLNL should continue to distribute and improve upon fact sheets.
- i. DOE should use LLNL's mailing list for its (DOE's) own mailings.
- j. DOE, in public meetings, should explain to the public that the public's testimony is important and can be repeated even if certain topics have already been commented on in other public forums.
- k. LLNL, during the community relations assessment process, should check to see why past CWG members left the group.

*Action Taken/Not Taken by DOE/LLNL based on these comments:*

- a. *DOE/LLNL currently devote significant staff resources to CWG meetings, including a facilitator who contacts all CWG members prior to each meeting to ensure that the agenda topics reflect the CWG's needs for that meeting. Separate funding for the CWG will not be provided; CWG requests for resource assistance will be evaluated on a case-by-case basis by the LLNL Area Relations department. As has been the process for all technical documents on which DOE/LLNL have requested CWG input, DOE/LLNL will distribute copies of these documents in advance of all CWG meetings.*
- b. *Comment noted. DOE/LLNL also share this goal.*
- c. *As was mentioned at the December 16th CWG meeting, DOE/LLNL will take steps to make the CWG more representative of the community.*
- d. *In future meetings, the LLNL facilitator will ask the group to distinguish between: 1) those comments that are shared by all group members, and 2) those that represent isolated member viewpoints.*
- e. *LLNL will make every effort to use non-styrofoam cups for future meetings.*
- f. *DOE/LLNL believe that they, as well as the CWG, have learned some lessons about the logistics of releasing press releases simultaneously. Every effort will be made to ensure that activities in this area go smoothly in the future.*
- g. *If desired by the CWG, the newsletter can periodically include information such as the summaries of agreements and group comments made at CWG meetings. Those summaries will be written by LLNL, based on the agreed-upon minutes of CWG meetings.*

*Regarding the question of whether the Technical Advisors can write for LLNL's newsletter, DOE/LLNL have decided that they will not accept guest authors for the Project publications. In keeping with EPA's TAG guidelines, Tri-Valley CAREs is required to use its TAG money to disseminate its views and those of its Advisors.*

- h. *LLNL will continue to distribute and improve upon its fact sheets.*
- i. *It is fairly typical for DOE to request LLNL's mailing list for its organizational mailings to the public.*
- j. *Comment noted.*

- k. LLNL included a survey question intended to elicit this information as part of the community relations assessment process. All past CWG members were contacted; several of whom were sent registered letters when telephone calls failed to elicit a response. The findings appear in Question 25 of Appendix B in the Draft Revised Community Relations Plan.

Issue #6: The CWG requests the following in the RAIP: contaminant reduction / mass removal milestones. They don't necessarily need to be legally binding. There may be variations (i.e., actual field performance may not match the estimates), but publish them anyway and explain why you did or did not meet the milestones. Do this every 5 years, as per the established Superfund review schedule.

*Action Taken/Not Taken by DOE/LLNL based on this comment: DOE/LLNL will publish in the final version of the first Remedial Design Document (RD1) graphs that show the estimated decline in total VOC mass over time, for the plume areas covered by that report. A similar graph prepared for the total VOC concentrations over the entire plume will be published in the next Project newsletter. All subsequent RD documents will contain plots similar to that contained in RD1. LLNL will periodically review progress towards meeting those estimates with the regulatory agencies and the public, as appropriate.*

Issue #7: As a group, the CWG wants to influence the public to press for DOE funding of the LLNL cleanup.

*Action Taken/Not Taken by DOE/LLNL based on this comment: No response needed.*

Issue #8: Some members of the CWG don't think that tritium is under control (in the water and air) at the LLNL Livermore Site. The CWG wants to flag this issue and discuss it at a later date.

*Action Taken/Not Taken by DOE/LLNL based on this comment: None required. DOE/LLNL believe that their understanding of where tritium contamination exists, as well as plans for dealing with it, should it become a problem, are more than adequate. The regulatory agencies receive tritium monitoring information regularly and have indicated that no further action is required. Operations that use tritium have decreased dramatically, as have tritium releases to the environment. In addition, LLNL has an extensive monitoring program to detect any new tritium occurrences, as well as occurrences of other radioactive substances.*

Issue #9: LLNL should continue to put attention on the interface between old and new pollution at the LLNL Livermore Site. For example, how do ongoing releases get incorporated into Superfund? Clarify "may" vs. "will" in paragraph 9, ROD section 2.4 (2nd paragraph). The CWG wants to see more explicit documentation regarding how new pollution will be incorporated into the LLNL Livermore Site process. The RAIP should be more clear on this point.

*Action Taken/Not Taken by DOE/LLNL based on this comment: The RAIP was clarified on this point. A new section (4.4) was added to page 43 of the RAIP in response to this comment. This section includes a map and table that identify the remaining potential source areas and planned activities in those areas. The ongoing source investigations and provisions for reporting their results in Monthly Progress Reports, are also described in paragraph 3, page 5 of the RAIP.*

*For your own information, the LLNL Livermore Site cleanup addresses all known past releases of hazardous substances. Responsibility for investigation of any new releases is the responsibility of other divisions within the LLNL Environmental Protection Department.*

*Currently, we are continuing to investigate several additional areas of contamination that we were unable to fully characterize prior to release of the PRAP. Should any of those areas require remediation, DOE/LLNL would conduct one of the following activities:*

- Document changes to the post-ROD file. If the new information warrants a nonsignificant change, such as minor changes to the type and/or cost of materials, equipment, or supplies used to implement the remedy, DOE/LLNL will document these changes in the post-ROD file.*
- Prepare an Explanation of Significant Differences (ESD). If the cleanup approach differs significantly from the remedy selected in the ROD, but does not fundamentally alter the remedy with respect to cost, scope, or performance, DOE will publish an ESD. DOE/LLNL will publish a notice summarizing the ESD in a major local newspaper of general circulation and make the ESD available in the Administrative Record.*
- Amend the ROD. If the cleanup approach fundamentally alters the remedy selected in the ROD, DOE/LLNL will propose an amendment to the ROD. A public comment period will be held, along with a public meeting if there is interest. Following the public comment period, DOE/LLNL will prepare a Responsiveness Summary that provides DOE responses to comments received during the public comment period. The Responsiveness Summary will be made available to the public. An example of a fundamental alteration to the remedy would be reconsideration of the remedial approach selected in the ROD.*

Issue #10: With regard to the 53 year cleanup estimate and DOE/LLNL analysis of shorter cleanup time frames, the CWG requests the following:

- Additional analysis in the RAIP regarding the shorter cleanup time frames. If the 30-year analysis is included (including the economic analysis), that would meet the CWG's needs.*
- A commitment from LLNL regarding when the documentation on the 30-year cleanup will be available.*

*Action Taken/Not Taken by DOE/LLNL based on this comment: The technical analysis is complete, but the economic analysis could not be finished prior to the regulatory deadline for completing the Final RAIP. Thus, none of this analysis was included in the Final RAIP document. However, DOE/LLNL do plan to complete the economic analysis as soon as Project resources allow. Unfortunately, this year's funding levels are insufficient*

*to allow us to both completion of this study and focus on our top priorities (i.e., achieving the RAIP milestones and tasks related to regulatory compliance). Once funds are available to complete the study, we will those results will be shared with the CWG. However, the decision to reduce the cleanup time will need to balance the benefits achieved (i.e., risk reduction) against the overall costs. If the cost is exorbitant, DOE/LLNL are not likely to be inclined to reduce the cleanup time.*

- D. COMMENT MADE BY ONE CWG MEMBER REGARDING THE DRAFT REMEDIAL DESIGN 1 DOCUMENT, MADE AT THE NOVEMBER 23, 1992 CWG MEETING (only suggested modification made by any members of the group at the meeting)

Issue #1: LLNL should add language in RD1 that refers to the fact that a contingency planning document for the overall cleanup approach will be issued at a later date.

*Action Taken/Not Taken by DOE/LLNL based on this comment: Reference to the fact that a Contingency Plan will be prepared is included in the introduction to the Final Draft RAIP.*